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Just Deserts: A Model to Harmonize Trade Secret Injunctions

D. Kirk Jamieson

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Just Deserts: A Model to Harmonize Trade Secret Injunctions

TABLE OF CONTENTS

| | |
|---|-----|
| I. Introduction..... | 516 |
| II. The History of Trade Secrets: Surveying the Forest in Spite of the Trees | 519 |
| A. Early Development of Trade Secrets | 521 |
| B. The Modern Definitions..... | 526 |
| C. The Value of the Trade Secret..... | 527 |
| III. Injunctive Relief for Trade Secrets | 530 |
| A. The History of Equitable Relief for Trade Secrets..... | 530 |
| B. The Compensatory/Punitive Dispute is Alive and Well | 535 |
| IV. The Inadequacies of the Current Compensatory Model.... | 537 |
| A. The Flaws in an Objective, Abstract Approach | 538 |
| B. Calculating the Length of the Injunction | 542 |
| C. Bad Faith Misappropriators | 544 |
| D. Non-time Investments | 545 |
| V. Facially Unlimited Injunctions Face Similar Problems | 545 |
| VI. The Solution | 547 |
| A. The Subjective Test | 547 |
| 1. No Information | 550 |
| 2. Some Public Information | 552 |
| 3. Post-Disclosure Cases..... | 553 |
| B. Calculating the Length of the Injunction | 554 |
| 1. Discerning the Legitimate Replication Period | 554 |
| 2. Nonuse Claims..... | 558 |
| 3. The Effect of a Preliminary Injunction..... | 560 |
| C. The Impact of Bad Faith on Compensatory Remedies . | 562 |
| D. The Impact of Non-time Investments | 563 |

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* D. Kirk Jamieson has a general commercial litigation practice, specializing in intellectual property with Pettit & Martin in San Francisco, California. B.A. *cum laude* 1981, Carleton College; J.D. *cum laude* 1986, The George Washington University National Law Center. The views expressed in this article are his alone, and do not necessarily represent the views of Pettit & Martin, any of its clients, or any other person or entity.

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|---|-----|
| E. Absence of Greater Legal and Transaction Costs | 566 |
| F. Existing Law Support | 566 |

I. INTRODUCTION

The law of trade secrets protects ingenuity that produces a commercial advantage and remains confidential.¹ The entrepreneur whose trade secret is stolen is entitled to monetary damages and an injunction framed to preserve the commercial advantage created by the trade secret. Despite more than 150 years of common law development in England and the United States, and a uniform act proposed to improve trade secret law, the courts' calculations of the length of this injunctive relief remain inconsistent and inaccurate.

Broadly speaking, there are two models for calculating an injunctive period, and both are flawed. The older approach restrains the misappropriator of the trade secret from using or disclosing the trade secret for an apparently unlimited period.² Sometimes these injunctions are expressly perpetual. More often they are simply unlimited on their face and either contain no reference to later termination or authorize later reconsideration without providing any useful standard to determine when they should be dissolved. This approach is expressly favored in about a half dozen states and is applied intermittently in many more.³ While this temporally unlimited injunction is generally justified as punitive, some adherents see it as only compensatory; the enjoined party misappropriated the trade secret and cannot establish that it would ever have developed the technology absent the misappropriation.⁴

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1. Trade secrets represent one of four general types of intellectual achievement protected by law and commonly characterized as "intellectual property." The others are patents, copyrights, and trademarks. Patents protect commercial ideas (such as the Wrights' airplane technology), copyrights protect expressions of ideas but not the ideas themselves (such as books and paintings), and trademarks (such as Xerox and Thermos) protect expressions that consumers come to identify with the source of particular goods. Trade secrets overlap only intermittently with copyrights (primarily with respect to computer software) and virtually never with trademarks. Trade secrets and patents do not cover the same ranges of technology but do overlap to a significant degree. An inventor whose idea qualifies for patent protection (which requires a high standard of novelty, among other things) can try to keep the idea secret or obtain a patent. The trade secret will last until the secrecy is lost or until competitors generally become aware of the technology. Thus, the period of a trade secret can vary dramatically. A patent, on the other hand, ensures a legally protectible technology for a period of years—usually seventeen—after which the technology is available to all. In addition, once the patent is granted the technology is disclosed in the patent, and the secrecy necessary to maintain a trade secret is lost.
 2. See notes 59-65 & accompanying text *infra*.
 3. See notes 79, 82, 106-09 & accompanying text *infra*.
 4. See notes 93-94, 154-55 & accompanying text *infra*.

The second approach attempts to determine the period of commercial advantage or "head start" provided by the trade secret and enjoins the misappropriator for that period. This type of injunction is commonly called a "lead-time" injunction, and lead time is generally considered the temporal advantage obtained by the misappropriator over competitors attempting legitimately to replicate the trade secret technology.⁵ These jurisdictions have not developed an accurate or uniform model for calculating the lead time. Most jurisdictions profess to employ the lead-time model, apparently including the 37 states that have enacted the Uniform Trade Secrets Act (UTSA), but both common law and UTSA jurisdictions have notable lapses that authorize facially unlimited injunctions.⁶ The failure to develop consistent, comprehensive, and commercially realistic standards for fashioning compensatory lead-time injunctions leads to haphazard assessments of the commercial advantage obtained by the misappropriator.

The inadequacy of the compensatory model also distorts the incentives to award perpetual or indefinite injunctions. When a court faces a bad faith misappropriator, the court's current choice is between an amorphous lead-time remedy apt to undercompensate the trade secret owner and a punitive or ill-defined indefinite injunction apt to overcompensate the trade secret owner. It should come as no surprise that many courts continue to award indefinite injunctions.

A careful review of the standards for injunctive relief can and should be applied in a new injunctive model to achieve awards that fully compensate the trade secret holder by placing the trade secret holder and the misappropriator in the positions they would have been in absent the misappropriation. Commercial reality suggests four crucial improvements to the current standards.

First, the courts must replace the objective question of how long an

5. See notes 71-76 & accompanying text *infra*.

6. In 1979, the National Conference of Commissioners on Uniform State Laws approved the Uniform Trade Secrets Act (UTSA), and 37 states have enacted some version of UTSA. 14 U.L.A. 71 (Supp. 1992). The Act sought to codify "the better reasoned" common law cases and strike a middle ground. UTSA Prefatory Note, 14 U.L.A. 433, 435 (1985). UTSA requires the termination of injunctions when a court determines that a trade secret has terminated, except that a court may enjoin a misappropriator for an additional period "to eliminate commercial advantage that otherwise would be derived from the misappropriation." UNIF. TRADE SECRETS ACT § 2, 14 U.L.A. 449 (1985). UTSA's interpretation is a focal point in the development of trade secrets law. Unfortunately, as discussed below, while UTSA's provisions would support an accurate compensatory model for framing injunctive relief, the drafters' comments appear to champion an erroneous objective standard that looks to competitors' capabilities rather than the misappropriator itself. UNIF. TRADE SECRETS ACT § 2 cmt., 14 U.L.A. 450 (1985); see notes 80-83 & accompanying text *infra*. Indeed, courts within UTSA jurisdictions mirror the common law's divisions, some providing perpetual injunctions and others "lead-time" injunctions. See notes 80-83 & accompanying text *infra*.

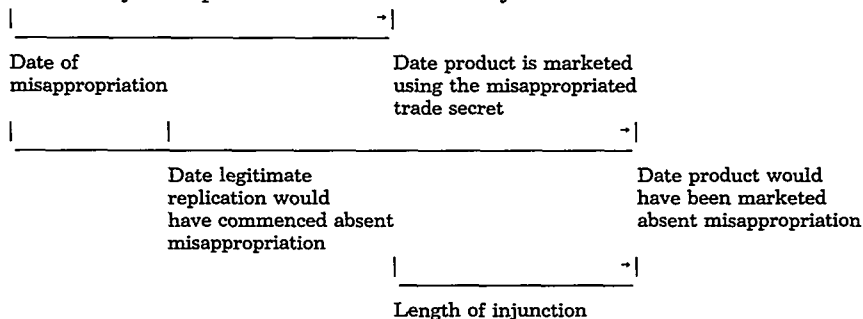
independent third party would take to develop the trade secret with a subjective test and determine the time necessary for the misappropriator itself to develop the trade secret through legitimate efforts. The commercial advantage gained by the defendant may differ from the average competitor. If the misappropriator cannot prove that it would have legitimately replicated the technology in a definite period, the misappropriator should be enjoined from using the trade secret until and unless the misappropriator legitimately replicates the product or process independently of the misappropriated trade secret information.

Second, courts are divided regarding how to calculate the injunctive period.⁷ Some courts commence the period on the date the misappropriation occurred and award an injunction only for the portion of the period that remains, if any, on the date of final judgment when the injunction is awarded. This approach is apt to reward the swift thief. Other courts arbitrarily commence the period on the date of the final judgment even though the misappropriator might have commenced legitimate replication prior to this date. This approach may overcompensate the trade secret holder. Yet others use the date the trade secret terminated through public disclosure. Courts should replace this haphazard muddle with a straightforward test that determines when the misappropriator would have commenced legitimate replication absent the misappropriation. The court can then accurately determine when legitimate replication would have been completed and measure that date against the date the misappropriator actually reached the market.⁸ This is the period of commercial advantage. An injunction for this period should be awarded, which will commence at final judgment. This holds the misappropriator out of the market for the same length of time that it had an unfair advantage in the market.

Third, the courts developing lead-time remedies have unnecessarily and inappropriately shied away from giving effect to the rational inferences one can draw from bad faith misappropriations. Absent

7. See notes 98-101 & accompanying text *infra*.

8. It may be helpful to show this schematically:



contrary evidence, it is reasonable to infer from an intentional or reckless decision to misappropriate that the defendant could not have legitimately and profitably developed the trade secret. Given these rational inferences, and the often highly speculative nature of determining the lead time, the bad faith misappropriator should face an indefinite injunction that lasts until it legitimately replicates the trade secret, unless the misappropriator can rebut this presumption and establish its ability to recreate the technology in a particular period.

Fourth, courts need to recognize that the time necessary to develop the trade secret technology is not a constant value independent of other factors. The development of trade secret technology requires the investment of many forms of capital. The requisite time necessarily varies with the amount of talent, labor, money, equipment, and other capital invested in the process. This analysis will result in indefinite injunctions against misappropriators with insufficient resources to develop the trade secret technology legitimately. Those with greater resources might face shorter injunctions but would pay the trade secret holder the monetary savings achieved by using the trade secret technology. This will result in a range of acceptable injunctive periods that vary inversely with the quantity of other forms of capital investment.

This article first recounts the history of trade secret protection and the concerns and policies that have determined its scope. The article next focuses specifically on the history of injunctive relief, and how the current remedial models remain unsatisfactory. The article concludes by establishing that deference to commercial reality allows the construction of a model that accurately places the parties in the positions they would have held absent the misappropriation.

The proposed model relies on principles fundamental to both UTSA and the common law, and is no less efficient than the current models for determining injunctive relief. Correcting the compensatory model should also remove the incentive for granting perpetual or unbridled indefinite injunctions. The indefinite injunction and the lead-time injunction are not as foreign to each other as the bar and the academy commonly assume. The proposed model reveals their common attributes and ties them together in a standard that should resolve the long-standing conflicts in fashioning trade secret injunctions. Jurisdictions can apply this model to solve the vexing and hitherto intractable problem of determining an appropriate period of injunctive relief in trade secret cases.

II. THE HISTORY OF TRADE SECRETS: SURVEYING THE FOREST IN SPITE OF THE TREES

Absent any punitive aspects, the goal of remedies for trade secret misappropriation is to provide the plaintiff the commercial advantage

that would have existed had there been no misappropriation. Punitive concerns, however, have always had a place in trade secret remedies. Trade secret law has long awarded punitive relief against trade secret misappropriators. An early Illinois case allowed the trade secret holder to calculate damages based on the extent to which the misappropriator intended to injure the holder rather than on the actual injury suffered.⁹

Today, the Uniform Trade Secrets Act¹⁰ authorizes an award of the trade secret holder's attorney's fees and twice its actual damages if a misappropriation was willful and malicious.¹¹ These remedies provide courts significant power to punish bad faith misappropriators. Incorporating a rationally based, consistent (and therefore predictable) punitive component into injunctive relief is more troublesome. Perpetual injunctive relief, although predictable, would lump together all gradations of bad faith, without opportunity for mitigation from a drastic remedy. Doubling the injunction's length would be consistent only at a highly superficial level, because doubling the period would have remarkably different effects in different factual settings. Commentators, therefore, generally decry punitive injunctions.¹²

Courts and commentators have often characterized indefinite and perpetual injunctions as punitive.¹³ This characterization is simplistic. As this article discusses,¹⁴ the current model for calculating injunctive relief often undercompensates the trade secret holder by assuming the misappropriator could and would have legitimately reverse-engineered the trade secret absent the misappropriation. The benefit of the doubt goes to the misappropriator. Perpetual injunctions, and indefinite injunctions that are not later limited, may also have a compensatory element. They may proceed from the assumption that the misappropriator could not or would not have reverse engineered the trade secret absent the misappropriation.¹⁵ The continuing willingness of courts to issue indefinite injunctions may reflect this compen-

9. *Hildreth v. Hancock*, 55 Ill. App. 572 (1894), *aff'd*, 41 N.E. 155 (Ill. 1895).

10. See note 80 & accompanying text *infra*.

11. UNIF. TRADE SECRETS ACT §§ 3, 4, 14 U.L.A. 455, 459 (1985).

12. *E.g.*, UNIF. TRADE SECRETS ACT § 2 cmt., 14 U.L.A. 450 (1985); M. Barclay, Comment, *Trade Secrets: How Long Should an Injunction Last*, 26 UCLA L. REV. 203, 211-12, 276 (1978); J. Berryhill, *Trade Secret Litigation: Injunctions and Other Equitable Remedies*, 48 COLO. L. REV. 189, 204 (1977). But see Comment, *Trade Secret Misappropriation: What is the Proper Length of an Injunction After Public Disclosure*, 51 ALBANY L. REV. 271, 290 (1987) (punitive injunction appropriate where willful and malicious conduct shown); Note, *Limiting Trade Secret Protection*, 22 VAL. U.L. REV. 725 (1988) (perpetual injunction appropriate where trade secret contains patent-like novelty).

13. *E.g.*, UNIF. TRADE SECRETS ACT § 2 cmt., 14 U.L.A. 750 (1985); see Barclay, *supra* note 12 at 211-12, 216; Berryhill, *supra* note 12, at 206.

14. See notes 90-91 & accompanying text *infra*.

15. See notes 91-95 & accompanying text *infra*.

satory motivation more than a desire to punish. This article proposes to refine the compensatory analysis to avoid undercompensation and to reduce the incentive to award punitive relief. To fashion an appropriate compensatory remedy, it is necessary to understand the scope of the rights protected by the law as trade secrets.

A. Early Development of Trade Secrets

Trade secrets are of venerable lineage. As with most common law doctrines, they can be traced to English precedents. In *Williams v. Williams*,¹⁶ a son sold medicines for his own account, although he had prepared them from formulas given to him by his father on the understanding that the two would use the formulas for their joint benefit. The Chancery trial court issued an injunction restraining the son from using or divulging the trade secret and from selling the medicines.¹⁷ On appeal, the Lord Chancellor, Lord Eldon, agreed that it was proper to require the son, by injunction, to fulfill the contract of partnership with his father or return the medicines. Lord Eldon noted, however, that enforcing an injunction to maintain a secret regarding unpatented medicines would, on general principles, require "very great consideration."¹⁸ The Lord Chancellor did not decide this question, however, because he dissolved the injunction on the grounds that the son had already divulged the technology and there was no secret remaining to protect, and that the son had controverted the facts supporting the original injunction.¹⁹

Three years later, in *Yovatt v. Winyard*,²⁰ the English courts first enforced an injunction to maintain secrecy. The defendant had been employed as a journeyman to a veterinarian. The defendant surreptitiously copied the plaintiff's recipes and instructions for the manufacture and use of various medicines. When the defendant set up a competing practice, Lord Eldon issued an injunction that restrained the defendant from using or communicating the recipes or instruc-

16. 3 Mer. 157, 36 Eng. Rep. 61 (1817).

17. *Id.* at 157, 36 Eng. Rep. at 61.

18. *Id.* at 160, 36 Eng. Rep. at 62. In support of this proposition, Lord Eldon cited his earlier opinion in *Newbery v. James*, 2 Mer. 446 (1817), in which he held that a covenant to maintain two secrets for medicines to treat gout, rheumatism, and fevers could not be enforced. One was the subject of an expired patent, and the patent had disclosed the secret. The other, according to Lord Eldon, could not be enforced because the secret would be lost through the necessity of disclosing it in court. Lord Eldon did not address this difficulty when, three years later, he affirmed the grant of an injunction to protect a trade secret in *Yovatt*. He was perhaps moved to ignore this perceived problem on the basis of a distinction urged by counsel, that the secret was freely communicated to the defendant in *Williams*, but was wrongfully obtained, without the permission of the trade secret owner, by the defendant in *Yovatt v. Winyard*, 37 Eng. Rep. 425, 426 (1820).

19. *Williams v. Williams*, 3 Mer. 157, 160, 36 Eng. Rep. 61, 62 (1817).

20. 1 Jac. & W. 394, 37 Eng. Rep. 425 (1820).

tions, and based the relief on the defendant's "breach of trust and confidence."²¹

The early cases pondered whether the court had equitable jurisdiction to enforce a contract that required someone to refrain from divulging a secret. This jurisdictional concern was soundly rejected as early as 1846, in the case of *Dietrichsen v. Cabburn*,²² where Lord Chancellor Cottenham noted that no branch of equity requires more discretion than injunctions but that none is more beneficial, and jurisdiction reaches to enforce all agreements to abstain from performing an act, including abstention from divulging trade secrets.²³

These early cases recognized multiple legal bases for the protection of trade secrets, including not only the law of contract, but also the law of property and the obligations of tort or "trust or confidence, meaning as I conceive, that the Court fastens the obligation on the conscience of the party."²⁴

21. *Id.* at 395, 37 Eng. Rep. at 426; *accord* *Morison v. Moat*, 9 Hare 241, 68 Eng. Rep. 492 (1851)(enforcing contract to maintain confidence by enjoining use or disclosure of the trade secret), *aff'd*, 21 L. J. Chanc. 248 (1852).

22. 2 Ph. 52, 41 Eng. Rep. 861 (1846).

23. *Id.* at 57-58, 41 Eng. Rep. at 863 (citing *Yovatt*), *see also* *Morison v. Moat*, 9 Hare 241, 255-56, 68 Eng. Rep. 492, 498-99 (1851)(noting that whatever the legal grounds, contract, property, or trust and confidence, the authorities leave no doubt that jurisdiction exists to enjoin the maintenance of trade secrets); *Bryson v. Whitehead*, 1 Sim. & St. 7, 57 Eng. Rep. 29, 31 (1822)(enforcing a contractual covenant to maintain a trade secret).

24. *Morison v. Moat*, 9 Hare 241, 255, 68 Eng. Rep. 492, 498 (1851)(restraining the use or disclosure of secret medicinal formulas); *cf.* *Prince Albert v. Strange*, 1 Mac. & G. 25, 46, 41 Eng. Rep. 1171, 1179 (1849)(upholding an injunction restraining defendants from displaying sketches they had misappropriated from Queen Victoria and Prince Albert, who had drawn them and kept them in their private apartments; the court noted that it had the power to enjoin conduct not only on the grounds of breach of contract or confidence but also to protect property and the right of privacy); *Green v. Folgham*, 1 Sim. & St. 398, 407-08, 57 Eng. Rep. 159, 162-63 (1823)(enforcing an accounting for a trust whose value was created by the maintenance of trade secrets for eye medicines); *Abernethy v. Hutchinson*, 1 Hall & Twells 28, 40, 47 Eng. Rep. 1313, 1318 (1824)(Eldon, L.)(refusing to enjoin publication of misappropriated lectures on the ground of copyright or contract but enjoining publication on the ground that the notes of the lectures had been obtained in "such a manner as this Court would not allow of publication," the "manner" inferentially constituting a breach of confidence, as assumed by Vice-Lord Chancellor Turner in *Morison*).

It is important to note that the courts quickly recognized that the "property right" in the trade secret was substantially limited by the requirement that the idea remain secret. The property right is lost once the idea becomes public. *E.g.*, *Cincinnati Bell Foundry Co. v. Dodds*, 10 Ohio Dec. Reprint 144 (Ohio Sup. Ct. 1887)(Taft, J., later United States Chief Justice). The property approach nevertheless retains many adherents, although others rely exclusively on tort and contract principles. *Compare* *E.I. DuPont de Nemours Powder Co. v. Masland*, 244 U.S. 100, 102 (1917)(dictum rejecting property rights analysis) *with* *Ruckelhaus v. Monsanto Co.*, 467 U.S. 986, 1004 (1984)(holding that trade secrets under Missouri law were property protected by the Fifth Amendment's takings clause); *see gen-*

In the United States, the trade secret doctrine was originally exclusively the domain of state law and remains primarily a state law doctrine.²⁵ The trade secret holder's right to be protected from a breach of trust and confidence by means of injunctive relief was apparently first applied in the United States by Massachusetts in *Peabody v. Norfolk*.²⁶ There a machinist, Norfolk, contracted not to disclose the plaintiff's process for manufacturing gunny sack cloth from jute, but took those secrets to a new employer. The court issued an injunction against Norfolk, requiring him not to use or disclose the trade secrets.²⁷ The plaintiff then sought an injunction in a supplemental bill against the new employer, who filed a general demurrer claiming there was no cause of action that would allow a trade secrets injunction against him. The court overruled the demurrer on the ground that it was "well established by authority" that equity jurisdiction extended to "interfere by injunction" to protect an inventor in his secret property from those who obtain it or disclose it by breach of contract or confidence.²⁸

In the latter half of the nineteenth century, the core aspects of the current trade secret doctrine were identified.²⁹ Injunctive relief was early recognized as appropriate.³⁰ An inventor has exclusive rights in

erally B. Kugler, *Limiting Trade Secret Protection*, 22 VAL. U. L. REV. 725, 739-43 (1988)(reviewing history of property rights as a basis for protecting trade secrets).

25. Federal law has developed regarding trade secrets in areas where the federal government exercises significant commercial control, primarily government contracts and international trade. *E.g.*, *Dowty Decoto, Inc. v. Department of the Navy*, 883 F.2d 774, 781 (9th Cir. 1989)(applying the Federal Trade Secrets Act, 18 U.S.C. § 1905, to determine in a government contract whether the claimed trade secrets in "holdback bars" used for carrier launches of aircraft were the property of the government, and holding that they were the property of the private contractor because they were developed by the private contractor at the contractor's risk and expense); *Viscofan, S.A. v. ITC*, 787 F.2d 544 (1st Cir. 1986)(affirming remedial order based on the Tariff Act of 1930, 19 U.S.C. §§ 1337, 1337a, and applying federal common law on trade secrets, following state authority, to enjoin importation of skinless sausage casings developed by Viscofan based on Viscofan's misappropriation of Union Carbide's trade secrets); 5 U.S.C. § 552(b)(4) (1992)(providing Administrative Procedure Act exclusion for trade secrets confidentially provided to federal agencies).
26. 98 Mass. 452 (1868); see generally M. JAGER, *TRADE SECRETS LAW* § 2 (concise discussion of trade secrets history).
27. *Peabody v. Norfolk*, 98 Mass. 452, 454 (1868).
28. *Id.* at 458.
29. See 2 J. STORY, *Commentaries on Equity Jurisprudence* § 952 (6th ed. 1853).
30. *Eastman Kodak Co. v. Reichenbach*, 47 N.Y. 435, 441-42, 20 N.Y.S. 110, 115 (1892)(expressly addressing jurisdiction to enjoin); *Peabody v. Norfolk*, 98 Mass. 452, 454, 458 (1868)(affirming injunction against departed employee and overruling demurrer allowing claim for injunctive relief against firm that allegedly obtained trade secret through departed employee); *Champlin v. Stoddart*, 30 Hun. 300, 302 (App. N.Y. 1883)(general term appellate decision)(same); *Salomon v. Hertz*, 2 A. 379, 381 (N.J. 1886)(issuing injunction); *Hammer v. Barnes*, 26 How.

her invention until it becomes generally available to the public.³¹ Trade secrets can be protected or conveyed by express contract.³² They also are protected through a generally implied condition of employment to maintain the employer's confidences, even after the end of the employment.³³ Tort law also imposes a duty to respect intellectual achievements of commercial value that the holder maintains in confidence.³⁴

The primary policy motivation for judicial protection of trade secrets, whether by contract or tort principles, has been reasonably straightforward from the beginning. The law encourages commercial development by protecting any advantage gained by an inventor's own efforts and ingenuity, as long as she takes reasonable steps to maintain the confidentiality of her work.³⁵ This judicial support helps maintain standards of "commercial morality" necessary to safeguard a successful entrepreneur's reward.³⁶ From the earliest cases, the courts have justified the award of relief by arguing that the success of commerce requires a judicial remedy for violations of the trust and confidences of the inventor, especially by employees.³⁷ Protection of this commercial advantage requires that the trade secret holder be made whole, that is, the trade secret holder and the misappropriator should be placed in the positions they would have reached absent the misappropriation.

As trade secret law developed, it rubbed elbows with other policy concerns. Some of these were provisions of positive law, such as the federal constitutional and statutory protection for patents, and the federal statutory trust-busting statutes, the Clayton and Sherman an-

Pr. 174, 176 (N.Y. Sup. 1863)(overruling demurrer on ground that court had jurisdiction to issue injunction to protect trade secret misappropriation).

31. *Tabor v. Hoffman*, 23 N.E. 12, 12 (N.Y. 1889)(holding that a cause of action existed to enjoin the use of misappropriated patterns for a pump, even though the pump itself was publicly available).
32. *Vickery v. Welch*, 36 Mass. 523, 526-27 (1837)(holding that a contract to convey unpatented trade secrets regarding chocolate manufacture was valid and enforceable, even though various other isolated individuals might know the same art, and ordering the defendant to pay damages on a bond he executed as security for his promise to convey the secret).
33. *O. & W. Thum Co. v. Toloczynski*, 72 N.W. 140, 141-43 (Mich. 1897).
34. *Stone v. Goss*, 55 A. 736 (N.J. 1903)(holding that third party who used trade secret with knowledge of breach of confidence was equally liable with original misappropriator, even though ignorant of express contract between misappropriator and original employer to maintain confidence); *Westervelt v. National Paper & Supply Co.*, 57 N.E. 552 (Ind. 1900); *O.W. Thum Co. v. Toloczynski*, 72 N.W. 140, 141-43 (Mich. 1897).
35. *Westervelt v. National Paper & Supply Co.*, 57 N.E. 552 (Ind. 1900); *Eastman Kodak Co. v. Reichenbach*, 47 N.Y. 435, 437, 441-43, 20 N.Y.S. 110, 112, 114-16 (1892).
36. *Eastman Kodak Co. v. Reichenbach*, 47 N.Y. 435, 439 (1892).
37. *Id.* at 442-43; *Yovatt v. Winyard*, 27 Eng. Rep. 425, 426 (1820)(awarding injunction where the defendant first wrongfully obtained the trade secret); *Morison v. Moat*, 68 Eng. Rep. 492, 493, 503 (1851)(awarding injunction where proper acquisition followed by breach of trust).

titrust acts. Courts were concerned to prevent trade secret law from becoming a back-door opportunity to gain a monopoly that would otherwise be prohibited by patent or antitrust requirements. This concern was expressed in the earliest cases,³⁸ but by the early twentieth century there was general agreement that the secrecy element in the definition of trade secrets allowed room for trade secret protection that did not undercut patent law.³⁹ Nor did trade secrets violate the common law's prohibition against unlawful restraints of trade.⁴⁰ Courts similarly held that the Sherman and Clayton antitrust acts did not preempt state trade secret law.⁴¹

38. *E.g.*, *Deming v. Chapman*, 11 How. 382, 384 (1854) (holding that patent law preempts trade secret claim); see *Williams v. Williams*, 36 Eng. Rep. 61, 62 (1817).

39. *Becher v. Contoure Laboratories, Inc.*, 279 U.S. 388, 391-92 (1929) (holding that state court had jurisdiction to decide who held title to patent obtained using stolen trade secret, and assuming validity of trade secrets despite federal patent law); *Stone v. Goss*, 55 A. 736 (N.J. 1903) (holding that trade secret for depilatories deserved protection because its novelty was similar to patentable novelty); *Hammer v. Barnes*, 26 How. Pr. 174, 176 (N.Y. Sup. 1863) (overruling demurrer asserting that patent law denied state court jurisdiction over trade secret claim). Given the general recognition that trade secrets law was not preempted by patent law, the United States Supreme Court did not deign to decide the issue expressly until 1973. *Kewanee Oil Co. v. Bicron Co.*, 416 U.S. 470, 474 (1974). Before *Kewanee*, four circuits had held that trade secrets were not preempted. In *Kewanee*, the Sixth Circuit broke rank and held that they were, and the Supreme Court stepped in to resolve the conflict, determining that trade secrets are not preempted.

40. *Vickery v. Welch*, 36 Mass. 523, 527 (1837) ("[I]t is of no consequence to the public whether the secret art be used by the plaintiff or by the defendant."); *Peabody v. Norfolk*, 98 Mass. 452, 460 (1868); *Fowle v. Park*, 131 U.S. 88, 98 (1889) (enforcing contract to maintain trade secrets in confidence); see also *Bryson v. Whitehead*, 57 Eng. Rep. 29, 31 (1822) (holding that maintenance of trade secret confidentiality by contract not a restraint of trade under English common law); cf. *Dr. Miles Medical Co. v. John D. Park & Sons Co.*, 220 U.S. 373 (1911) (recognizing right to enforce contract requiring distributors to maintain the trade secret in confidence but holding void as against public policy the holder's attempt to restrain trade by including a provision purporting to set wholesale and retail prices). Jager's research suggests that *Vickery* is the first trade secrets case reported in the United States and *Peabody* the first case protecting a trade secret by issuing an injunction. Jager, *supra* note 26, at 2-6. This author has not discovered any earlier cases.

41. *E.g.*, *United States v. E.I. Dupont de Nemours & Co.*, 118 F. Supp. 41, 219 (D. Del. 1953) (proper standard for testing licensing arrangements for trade secrets is whether they are "ancillary" and "reasonable" restraints upon commerce, or a subterfuge for establishing an illegal restraint); cf. *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257, 262-65 (1979) (holding that a royalty to be paid for use of an unpatented trade secret was enforceable even after the trade secret was disclosed, distinguishing antitrust limitations on patent royalties to be paid after the patent expired); see generally W. HOLMES, *INTELLECTUAL PROPERTY AND ANTITRUST LAW* §§ 25-29 (July 1992) (reviewing antitrust restraints on trade secret marketing). In this area the issue has not been whether all trade secret protection is preempted by antitrust law, but instead what limitations does antitrust law require in the marketing of products that incorporate trade secrets? The courts

One other crucial concern that tends to limit trade secret protection is not based on a specific statute, but is instead a general policy concern that trade secret law must not prevent people from practicing their professions. Free and vigorous competition in the labor market and fundamental fairness both require that employees be allowed to capitalize on their development of expertise. Courts early recognized the need to draw the line between legitimate protection of trade secrets or confidential information and attempts to restrain trade or employees' freedom.⁴²

B. The Modern Definitions

The early cases balanced these policy concerns in determining the showing necessary to establish a trade secret, and courts still expend much of their analytical effort balancing these policy concerns case by case. The early definitions remain recognizable in the still quite general modern definitions. There have been two attempts in the twentieth century to establish a uniform framework for considering rights in trade secrets. The first is found in the RESTATEMENT OF TORTS § 757 and the comment thereto, which defines a trade secret as a secret regarding "any formula, pattern, device or compilation of information" that provides an advantage over competitors.⁴³ The secret may have the novelty required of a patent, but it need not.⁴⁴ Even if it is clearly anticipated in the prior art, its secrecy can be protected as long as it provides some commercial advantage. The Restatement canvases the cases that discuss the bases for trade secrets and concludes that the property right basis has been rejected, and that the duty is more appropriately considered a general tort requirement of good faith. Breaches of this duty, whether of contract, confidence, or improper

have generally placed upon trade secrets the same marketing constraints to which patents are subject.

42. This balance was originally struck with an emphasis toward the protection of employers and has engendered substantial commentary in this century suggesting alterations to expand protection for employees. See note 84 *infra*. E.g., *Keeler v. Taylor*, 53 Pa. 467, 468-70 (1866) (voiding an agreement as "in restraint of trade and industry" where it bound an employee to pay his original employer \$50 for every scale he sold throughout his life, even after setting up his own business, noting that there was no contention that the employer's process for manufacturing scales was an "invention" rather than a "handicraft"); *Salomon v. Hertz*, 2 A. 379, 381 (N.J. 1886) (affirming preliminary injunction restraining use or disclosure of trade secret but dissolving preliminary injunction restraining employees from use or disclosure of suppliers of former employer); *O.W. Thum Co. v. Toloczynski*, 72 N.W. 140, 141-44 (Mich. 1897) (discussing limits of legitimate competition). Cf. *Badische Anilin und Soda Fabrik v. Schott Segner & Co.*, 3 Ch. 447, 453 (1892) (enforcing three-year world-wide covenant not to compete in manufacture and sale of aniline colors, tar products, and the like, on the ground that to void the contract would unnecessarily restrict the employees' freedom of contract).

43. RESTATEMENT OF TORTS § 757 cmt. b (1939).

44. *Id.*; accord *Stone v. Goss*, 55 A. 736, 738 (N.J. 1903).

means of acquiring the secret, justify a remedy.⁴⁵ Copying by inspecting a publicly available product does not violate the duty.

While the Restatement gained substantial adherents, and is probably still the most influential guide to trade secret definition, its general nature allowed uneven development in case law regarding the parameters of protectible trade secrets and the remedies for their misappropriation.⁴⁶ In 1968, the American Bar Association established a committee to develop a uniform act, and in 1979 the Uniform Trade Secrets Act was approved by the ABA.⁴⁷ UTSA defines trade secrets as information that

derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.⁴⁸

The current law thus establishes only a rough balance in defining trade secrets by providing general guidelines, subject to the ultimate determination of a fact-finder in all but the most obvious cases (where the court can determine the result as a matter of law with which no reasonable person would disagree). The breadth of trade secrets, and the uncertainties inherent in their definition, whether startlingly novel or a minor improvement, suggest that there remains a broad range of situations where the policies supporting and limiting trade secret protection have substantial impact.

C. The Value of the Trade Secret

In determining whether technology qualifies as a trade secret, the value of the trade secret is key—and it pays to review this area briefly because this same issue is key to fashioning the scope of injunctive relief. How much commercial advantage does the alleged trade secret provide? This breaks down into two components: How much commercial advantage does the trade secret discovery provide, and over how much of the competition? A minimal advantage shared by all but one competitor in a trade of hundreds is not a trade secret. A great new technology that produces a better widget, or dramatically reduces the cost of producing widgets, held by one competitor over all others is undoubtedly a trade secret. Between these extremes, however, determining how much secrecy is enough, and how much commercial advantage is enough, remains difficult.

The first issue is how much ingenuity is enough. This inquiry takes several forms. One is the abiding disagreement about whether the

45. RESTATEMENT OF TORTS § 757 cmt. a (1939).

46. UTSA Prefatory Note, 14 U.L.A. 434 (1985).

47. *Id.* at 435-436.

48. UNIF. TRADE SECRETS ACT § 1(4)(i), (ii)(1985).

possibility of reverse engineering is sufficient to negate confidentiality.⁴⁹

Another is the still viable proposition that trade secrets cannot be premised on publicly available knowledge, although "new" combinations of publicly available information can be trade secrets.⁵⁰ While this principle is not necessarily internally contradictory, the procedure for determining whether a combination of publicly available information is new is not self-explanatory.⁵¹

Most courts, however, both older and modern, have tried to determine how much ingenuity is enough by recognizing trade secrets where several different entities hold confidential information that still provides a commercial advantage not generally known in the industry.⁵²

The other issue is how much secrecy is enough. Early cases held that disclosure within the holder's organization did not undermine trade secret status where the disclosure was necessary to the commercial utilization of the trade secret, and efforts to control further disclosure were taken.⁵³ Limited disclosure, or independent knowledge of the secret, outside the holder's organization proved infinitely more

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49. *Compare* SI Handling Systems, Inc. v. Heisley, 753 F.2d 1244, 1255 (3d Cir. 1985)(there is no trade secret where the secret technology is disclosed by reverse engineering from a product in the public domain) *with* Tabor v. Hoffman, 23 N.E. 12, 13 (N.Y. 1889)(trade secret may exist even though it is possible with investment or effort to reverse engineer the secret from a publicly available product); Eastman Kodak Co. v. Reichenbach, 20 N.Y.S. 110 (1892) (same); Richardson v. Suzuki Motor Co., Ltd., 868 F.2d 1226, 1243-44 (Fed. Cir. 1989)(same) *and* UNIF. TRADE SECRETS ACT § 1 cmt., 14 U.L.A. 438-39 (1985)(trade secret exists if reverse engineering from publicly available information is lengthy and expensive).
50. *Compare* Fralich v. Despar, 30 A. 521, 522 (Pa. 1894)(no trade secret can exist where technology known to many others); Taylor v. Blanchard, 95 Mass. 370, 373-74 (1866)(no trade secret for information known by three other businesses) *with* Eastman Kodak Co. v. Reichenbach, 20 N.Y.S. 110, 112 (1892)(new combinations of publicly available information can be protected as trade secrets) *and* Hammer v. Barnes, 26 How. Pr. 174, 176-77 (1863)(trade secret rights existed where holder sold secret of brewing ales to many others but required confidentiality in each transaction).
51. Another focus for this inquiry is whether the trade secret must have the novelty required of a patent. Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 476, 482 (1974)(patent novelty unnecessary for trade secret protection); Anaconda Co. v. Metric Tool & Die Co., 485 F. Supp. 410, 422 (E.D. Pa. 1980)(same); A.O. Smith Corp. v. Petroleum Iron Works Co., 73 F.2d 531, 538 (6th Cir. 1934)(remarking that discovery is something less than invention); *see also* notes 43-45 & accompanying text *supra*.
52. Vickery v. Welch, 36 Mass. 523, 526-27 (1837); Hammer v. Barnes, 26 How. Pr. 174, 176-77 (1863); *see* UNIF. TRADE SECRETS ACT § 1 cmt., 14 U.L.A. 438-39 (1985).
53. Peabody v. Norfolk, 98 Mass. 452, 461 (1868)(necessary disclosure within organization); Pressed Steel Car. Co. v. Standard Steel Car Co., 60 A. 4, 8 (Pa. 1904)(only reasonable precautions necessary to maintain secrecy regarding railroad car blueprints—unlocked doors and distribution to customers did not negate protectibility).

troublesome.⁵⁴

This determination of whether a trade secret exists is, almost by definition, an industry-based determination. An idea that minimally reduces the costs of production and is known by a large portion of an industry represents little commercial ingenuity, and prohibiting its general use exacts significant costs on employees in the profession who wish to move to a new job or start their own business. On the other hand, a major new commercial achievement, such as the advent of zippers to replace buttons, developed by one competitor in the gigantic clothing industry, represents substantial ingenuity and imposes little constraint on employees' efforts to develop their careers.⁵⁵ While there is no perfect guidance, the policy interests suggest that, to qualify as a trade secret, technology must meet minimal standards high enough to justify imposing restraints on employee freedom and ready marketability of the idea (the latter to protect patent and anti-trust policies). To determine whether a trade secret exists, the determination is thus objective, in the sense that a technical edge must exist over the industry as a whole and not simply over one competitor.

A subjective assessment of a new technology's value will necessarily produce differing results. The goal is to protect the commercial advantage achieved by the ingenuity, investment, and effort of the inventor. That commercial advantage varies, depending with whom the inventor's efforts are compared. To more able competitors, a "new" manufacturing process that reorganizes currently available technology is relatively insignificant; they could achieve the same improvement independently with significantly less effort than the "inventor." To other competitors, the same reorganization of existing technology is a godsend; some of them simply lack the ingenuity to conceive the reorganization on their own, and others lack the financial capital or available human resources to test and perfect the reorganization. The inventor has achieved an improvement that provides a commercial advantage over the latter competitors but not the former. The decision whether the information is generally available within the industry

54. *E.g.*, *Deming v. Chapman*, 11 How. Pr. 382, 384 (N.Y. Sup. Ct. 1854)(no protectible secret could exist because the necessary court review would disclose the secret); *Taylor v. Blanchard*, 95 Mass. 370, 373-74 (1866)(no secret existed because at least three other Massachusetts companies knew the technology); *Bristol v. Equitable Life Assur. Soc. of United States*, 30 N.E. 506 (N.Y. Ct. App. 1892)(submission of idea to potential employer without agreement to maintain secrecy negated requirement of confidentiality and right to relief); *but cf.* *Pressed Steel Car Co. v. Standard Steel Car Co.*, 60 A. 4, 6-7 (Pa. 1904)(disclosure of railroad car plans to customers as requested did not terminate right to protection); *Stone v. Goss*, 55 A. 736, 738 (N.J. 1903)(*in camera* proceedings could review trade secrets claim without disclosing secret).

55. *See Conmar Products Corp. v. Universal Slide Fastener*, 172 F.2d 150 (1949).

will thus necessarily provide too much or too little protection vis-a-vis a portion of the industry.

The inaccuracy of the objective approach in defining a trade secret is difficult to correct because of the policy reasons that suggest a certain minimal standard is necessary throughout each trade to protect other policy concerns.⁵⁶ Nevertheless, once the court objectively determines that a trade secret exists, the remedy can be adjusted to match more accurately the commercial value of the misappropriated trade secret. The next question is how to value what the plaintiff has lost by the misappropriation. If the misappropriator has disclosed the trade secret to the entire industry (this is also an objective determination) one must determine the advantage the secret provided over the industry as a whole. On the other hand, if the misappropriator has kept the secret and used it for her own benefit, then the appropriate determination is how much the trade secret holder has lost to the defendant's benefit. This determination, which is the focus of this article, is necessarily subjective; it must focus on the trade secret holder's loss to the misappropriator and not some abstract conception of the average competitor.

III. INJUNCTIVE RELIEF FOR TRADE SECRETS

In balancing competing policy concerns, courts have achieved at least a rough measure of justice in the decision whether a plaintiff's technology qualifies as a trade secret. This same balancing, however, must be performed in determining how much relief to provide to a successful trade secrets plaintiff, and in this arena neither the common law nor UTSA has developed a satisfactory and consistent answer. Some courts award punitive injunctions; others attempt to determine the period of commercial advantage obtained by the misappropriator over legitimate competitors.⁵⁷

A. The History of Equitable Relief for Trade Secrets

The equitable relief granted in the early cases was overwhelmingly likely to be a perpetual permanent⁵⁸ injunction prohibiting the use of

56. For example, an advantage held by most of the industry over only a few competitors is unlikely to qualify as a trade secret because such protection would drastically limit the ability of employees to capitalize on their knowledge of the technology by bringing it to one of the few.

57. The question of efficiency (at what price justice?) is unavoidable, of course, and it is fair to ask whether the model for determining the lead-time through court proceedings imposes unacceptably high transactional costs. This article explains that the proposed model would add only modest additional costs in legal fees and judicial resources, if any, over the current model. See text accompanying notes 168-69, *infra*.

58. For clarity's sake it is important to note that "permanent" injunction in this arti-

the trade secret information.⁵⁹ These cases uniformly provide such sweeping relief without any supporting analysis. This obvious and significant restriction on the freedom to trade was apparently justified simply as a penalty, or perhaps by the difficulty of ensuring that the misappropriator developed a competing product independently of the trade secret technology.

By historical accident, the most important engine driving the development of models for equitable relief from this early period has been an unnecessarily vigorous and broad dispute over a particular subissue: What should a court do about the continuation of equitable relief after the trade secret ceases to exist? Should a misappropriator's conduct require that it continue to be enjoined from using a trade secret that is now publicly available to every other competitor? This particular issue became the source of the two most significant, and contradictory, cases decided this century regarding the length of trade secret injunctions: *Shellmar* and *Conmar*.

The Allen-Qualley Company had developed a process for producing a particular wrap for candy bars. The Shellmar Products Company obtained the technology for its exclusive use from Allen-Qualley but then violated the license by misappropriating the process to its own advantage, including obtaining a patent for part of the process. Allen-Qualley obtained a facially perpetual permanent injunction, prohibiting Shellmar from using the trade secret technology and requiring Shellmar to assign the patent to Allen-Qualley,⁶⁰ and the first appellate court opinion in the case affirmed this injunction.⁶¹ The court enjoined Shellmar despite the court's recognition that the trade secret technology had already been disclosed in a patent obtained by Shellmar, a machine used by Shellmar, and the "public" practice of a competitor using the process at its plant, Thomas M. Royal and Company.⁶²

Shellmar later brought a bill of review to dissolve the injunction,

cle signifies the injunction awarded at final judgment, in contrast to a preliminary injunction issued pending trial. A permanent injunction can last three days. This term of art has not surprisingly been the cause of some confusion.

59. *New Method Laundry Co. v. MacCann*, 161 P. 990, 991, 994 (Cal. 1916)(perpetual injunction); *Empire Steam Laundry v. Lozier*, 130 P. 1180, 1182-83 (Cal. 1913)(perpetual injunction); *Peabody v. Norfolk*, 98 Mass. 452, 454 (1868)(unlimited injunction); *O.W. Thum v. Toloczynski*, 72 N.W. 140, 141-44 (Mich. 1897)(unlimited injunction); *Eastman Kodak Co. v. Reichenbach*, 20 N.Y.S. 110, 115-16 (N.Y. 1892)(unlimited injunction); *Tabor v. Hoffman*, 23 N.E. 12, 12-13 (N.Y. 1889)(unlimited injunction); *Champlin v. Stoddart*, 30 Hun. 300, 302-03 (N.Y. Ch. 1883)(unlimited injunction); *Fralich v. Despar*, 30 A. 521, 522 (Pa. 1894)(unlimited injunction).
60. *Allen-Qualley Co. v. Shellmar Products Co.*, 31 F.2d 293 (N.D. Ill. 1929).
61. *Shellmar Products Co. v. Allen-Qualley Co.*, 36 F.2d 623 (7th Cir. 1929).
62. *See Shellmar Products Co. v. Allen-Qualley Co.*, 87 F.2d 104, 105 (7th Cir. 1937)(describing evidence presented at original trial).

based on three other patents obtained by third parties that disclosed the process. The trial court refused to dissolve the injunction, and the appellate court affirmed.⁶³ The courts reasoned that although the full public disclosure of the trade secret technology through patents terminated the trade secret, Shellmar's inequitable conduct, the violation of Allen-Qualley's confidential communication in the license, had taken Shellmar "outside the pale of the general public to which the disclosure of that patent was made."⁶⁴

Courts came to read *Shellmar* for the proposition that perpetual injunctions should be granted as a general rule in trade secret cases and that the termination of a trade secret was irrelevant.⁶⁵

Conmar took a contrary position: If the trade secret was fully disclosed by a patent, any injunction must be dissolved at the time of disclosure, even where the defendant had misappropriated the trade secret prior to the disclosure.⁶⁶ Employees of Conmar Products Corporation had obtained knowledge of Conmar's process for manufacturing zippers. The employees left Conmar's employ and provided that knowledge to Universal Slide Fastener, without Universal's knowledge that they were violating a confidence of their former employer.⁶⁷ Conmar had patented various processes related to the zipper and brought an action against Universal for patent infringement and trade secret misappropriation. The trial court dismissed several of the patent claims and the trade secret claim, and the appellate court affirmed. The Second Circuit, in an opinion authored by Learned Hand, reasoned that virtually all of the trade secrets were dedicated by pat-

63. *Id.* at 110.

64. *Id.* at 107. For clarity's sake, it is worth noting that in these patent disclosure cases the rights of the public to the patent information are, of course, limited during the term of the patent. Thus even where a trade secret injunction is dissolved after the issuance of the patent the defendant, and the public generally, would be subject to suit for infringement by using the technology during the life of the patent. *Shellmar* relieves the former trade secret holder, and now patent holder, from the "burden of suing for patent infringement when its proprietary rights in the process have already been adjudicated." *Id.* at 108. Of course, under the *Shellmar* rule the misappropriator remains enjoined even after the patent has expired.

65. The earlier case of *A.O. Smith Corp. v. Petroleum Iron Works Co.*, 73 F.2d 531 (6th Cir. 1934), is sometimes cited as establishing *Shellmar*'s rule that trade secret injunctions can extend beyond full disclosure in a patent. See *Jager, supra* note 26, at § 6.04[1]; *Shellmar Products Co. v. Allen-Qualley Co.*, 87 F.2d 104, 108-09 (7th Cir. 1936)(citing *A.O. Smith*). A close reading of the case discloses, however, that the *A.O. Smith* court ordered an injunction to last through the patent application process, but to be dissolved upon the issuance of any patent covering the trade secret processes. Unlike *Shellmar*, then, the owner of the trade secret would have had to institute a new proceeding that sought continued protection based on infringement of the patent. *A.O. Smith Corp. v. Petroleum Iron Works Co.*, 73 F.2d 531, 539 (6th Cir. 1934).

66. *Conmar Products Corp. v. Universal Slide Fastener*, 172 F.2d 150 (2nd Cir. 1949).

67. *Id.* at 154.

ents to the public, and that the employees' obligation to maintain the trade secrets of their former employer expired upon issuance of the patents.⁶⁸ Because no obligation requiring secrecy remained, no injunction would issue. *Conmar* expressly rejects *Shellmar*'s suggestion that earlier "inequitable conduct" prohibits the misappropriator from enjoying the rights of the public to the trade secret.⁶⁹

Conmar could have reached this result without creating a conflict with *Shellmar*. There were readily available grounds to distinguish the two cases. In the first place, the defendant in *Conmar* was an innocent purchaser that did not know it was purchasing a misappropriated trade secret, while the defendant in *Shellmar* acted in bad faith by consciously misappropriating the trade secret in violation of its license agreement. In the second place, in *Conmar* the trade secret holder itself had obtained patents that necessarily disclosed the trade secret. In *Shellmar*, the trade secret holder had not disclosed the trade secret to the public. The Second Circuit, nevertheless, chose to rest its position on the broader policy dispute.

Despite these several possible grounds for distinguishing *Shellmar* and *Conmar*, within a generation they became the leading cases for determining the length of trade secret injunctions.⁷⁰ This occurred even though both cases addressed full disclosure in patents and did not purport to create rules applicable to partial disclosure.

In the last two generations, courts have backed away from the two poles represented by *Shellmar* and *Conmar*. Many courts recognized that both positions overstated the effect of disclosure of the trade secret. *Shellmar* prevents the misappropriator from ever utilizing the trade secret, even generations after it ceases to be a trade secret. *Conmar* allows the misappropriator to use the trade secret as soon as it is publicly available to legitimate competitors, without recognizing the misappropriator's head start during the period prior to the public disclosure when the misappropriator had the use of the trade secret.

These more moderate courts started to fashion an injunctive period to match the theoretical advantage misappropriators have over an average competitor. *Winston Research Corp. v. Minnesota Mining &*

68. *Id.* at 156. One trade secret had not been disclosed by patent. With regard to this trade secret, the Second Circuit affirmed on the ground that Universal was an innocent purchaser for value—it did not know of the breach of confidence when it obtained the technology—and its substantial investment prior to notice of the breach justified its use of that trade secret for the period it remained secret before it, too, was disclosed by a patent. *Id.* at 156. This approach follows the balancing test outlined in the first RESTATEMENT OF TORTS for bona fide purchasers of trade secrets. § 758(b) & cmt. (e).

69. *Conmar Products Corp. v. Universal Slide Fastener*, 172 F.2d 150, 155-56 (2d Cir. 1949).

70. See generally *Jager*, *supra* note 26, at § 6.04 (citing cases following *Shellmar* and *Conmar*).

*Manufacturing Co.*⁷¹ is generally recognized as the leading case championing this approach. The employees of the Mincom Division of Minnesota Mining & Manufacturing took their knowledge of Mincom's secrets regarding precision tape recording equipment and started a new business, Winston Research Corporation. Mincom brought suit and proved that the precision tape recording technology was its trade secret. The court started from the proposition that Mincom was entitled to protection of its trade secrets for as long as they remained secret.⁷² Mincom, however, publicly disclosed its trade secret technology during the prosecution of the lawsuit in "public announcements, demonstrations, and sales and deliveries" of its Mincom machines.⁷³ The trial court refused to apply either of the extreme rules of *Shellmar* (perpetual injunction) or *Conmar* (no injunction), and ruled instead that Winston should be enjoined for a period of two years. The appellate court affirmed, holding that the balancing of policies, employee freedom versus rewarding the employer's initiative and investment,⁷⁴ required an injunction for "the approximate period it would require a legitimate Mincom competitor to develop a successful machine after public disclosure of the secret information."⁷⁵ This lead-time approach has been followed in many, if not the majority of, jurisdictions throughout the country.⁷⁶

The *Winston Research* lead-time approach has superficial attractiveness, at least in comparison to the extreme positions of *Shellmar* and *Conmar*. It constructs a remedy presumably designed to impose upon the misappropriator the same time restraint borne by legitimate competitors. The lead-time cases assume, however, without discussion or with only conclusory assertions, that a trade secret can be reverse engineered and that the only issue is how long the process will take. Given that the lead-time cases grow out of the *Winston Research/Shellmar/Conmar* dispute, in which the trade secrets had already been publicly disclosed, this is understandable. It is, however, an illogical assumption. The logical first question, which has been regularly downplayed when it has not been totally ignored, is whether the defendant could have replicated the technology without the trade

71. 350 F.2d 134 (9th Cir. 1965).

72. *Id.* at 141.

73. *Id.* at 141.

74. *Id.* at 137-38.

75. *Id.* at 142.

76. *E.g.*, *Lamb-Weston, Inc. v. McCain Foods, Ltd.*, 941 F.2d 970, 974-75 (9th Cir. 1991)(applying Oregon law); *Surgidev Corp. v. Eye Technology, Inc.*, 828 F.2d 452, 456 (8th Cir. 1987)(applying Minnesota and California law); *Viscofan, S.A. v. U.S. Int'l Trade Comm.*, 787 F.2d 544, 547, 549-51 (Fed. Cir. 1986)(applying federal common law); *Sigma Chemical Co. v. Harris*, 794 F.2d 371, 374-75 (8th Cir. 1986)(applying Missouri law); *Syntex Ophthalmics, Inc. v. Novicky*, 745 F.2d 1423, 1435-37 (Fed. Cir. 1984)(applying Illinois law); *K-2 Ski Co. v. Head Ski Co.*, 506 F.2d 471, 474 (9th Cir. 1974)(applying Washington and Maryland law).

secret.⁷⁷

Moreover, many cases either expressly apply an objective standard to determine the lead-time period, or contain contradictory language and analysis, some objective and some subjective.⁷⁸ This allows a misappropriator the benefit (or imposes the penalty) of being treated as a mythical average competitor, rather than looking subjectively at what the misappropriator would have accomplished by legitimate means. This objective lead-time approach fails to provide an accurate compensatory remedy.

B. The Compensatory/Punitive Dispute is Alive and Well

The initial focus of *Shellmar* and *Conmar* on whether the remedy should have a punitive component has, not surprisingly, produced case law focused primarily on this dispute. The battle continues in full spate; both positions are championed by considerable adherents. Despite the fast-paced growth of the lead-time analysis, many common law jurisdictions either regularly or occasionally still impose facially perpetual punitive injunctions.⁷⁹

UTSA apparently intended to resolve this dispute. It authorizes injunctions for the life of the trade secret and for any lead-time period thereafter necessary to eliminate commercial advantage that other-

77. *E.g.*, UNIF. TRADE SECRETS ACT § 2 cmt., 14 U.L.A. 449-51 (1985)(focusing on abilities of competitors with no reference to the misappropriator's capabilities); *Schulenberg v. Signatrol*, 212 N.E.2d 865, 869-70 (Ill. 1965)(same).

78. See notes 86-87 & accompanying text *infra*.

79. *William M. Mercer, Inc. v. Maclean Assoc., Inc.*, 18 U.S.P.Q.2d 1806 (E.D. Pa. 1991)(Pennsylvania law); *Integrated Cash Mgmt. Servs. Inc. v. Digital Transactions, Inc.*, 17 U.S.P.Q.2d 1054 (2d Cir. 1990)(applying New York law and ordering perpetual injunction prohibiting sale of existing products built through misappropriation and six-month injunction against use of trade secret); *Molex, Inc. v. Nolen*, 759 F.2d 474, 477 (5th Cir. 1985)(Texas law, perpetual injunction); *Zoecon Indus., Inc. v. American Stockman Tag Co.*, 713 F.2d 1174, 1180 (5th Cir. 1983)(Texas law); *Elnicky Enterprises, Inc. v. Spotlight Present, Inc.*, 213 U.S.P.Q. 855, 863 (S.D.N.Y. 1981)(New York law); *Curtiss-Wright Corp. v. Edel-Brown Tool & Die Co.*, 407 N.E.2d 319, 326 & n.8 (Mass. 1980)(Massachusetts law); *David Fox & Sons, Inc. v. King Poultry Co.*, 47 Misc. 672, 262 N.Y.S.2d 983 (1984)(New York law); *Valco Cincinnati v. N & D Machining Serv.*, 492 N.E.2d 814, 820 (Ohio 1986)(Ohio common law); *Pyromatics, Inc. v. Petruziello*, 454 N.E.2d 588, 595 (Ohio 1983); *Williams v. Compressor Eng'g Corp.*, 704 S.W.2d 469 (Tex. App. 1986); *Elcor Chemical Corp. v. Agri-Sul, Inc.*, 494 S.W.2d 204, 213 (Texas 1973)(applying Texas law); *cf. Richardson v. Suzuki Motor Co., Ltd.*, 868 F.2d 1226, 1247 (Fed. Cir. 1989)(apparently applying California common law, possibly later altered by California's passage of UTSA); *American Precision Vibrator Co. v. Nat'l Air Vibrator Co.*, 10 U.S.P.Q.2d 1129 (Tex. App. 1989)(approving perpetual injunction but vacating relief to extent it exceeded that requested in the pleadings); *Aerosonic Corp. v. Trodyne Corp.*, 402 F.2d 223, 228 (5th Cir. 1968)(applying Florida law, possibly altered by Florida's passage of UTSA); *Saunders v. Florence Enameling Co.*, 540 So. 2d 651, 655 (Ala. 1988)(applying Alabama common law, possibly later altered by Alabama's passage of UTSA).

wise would be derived from the misappropriation.⁸⁰ The Commissioners' Comments to the section expressly decry punitive perpetual injunctions and propose setting injunctions by the time necessary for good faith competitors to replicate the trade secret legitimately, citing a lead-time case.⁸¹ Despite the comment's language, some courts have interpreted UTSA as supporting indefinite, and often apparently perpetual or punitive, injunctions.⁸² Others have set definite periods us-

80. UNIF. TRADE SECRETS ACT § 2 (1985). The current language of the section, in effect since 1985, provides:

2. Injunctive Relief

(a) Actual or threatened misappropriation may be enjoined. Upon application to the court, an injunction shall be terminated when the trade secret has ceased to exist, but the injunction may be continued for an additional reasonable period of time in order to eliminate commercial advantage that otherwise would be derived from the misappropriation.

(b) In exceptional circumstances, an injunction may condition future use upon payment of a reasonable royalty for no longer than the period of time for which use could have been prohibited. Exceptional circumstances include, but are not limited to, a material and prejudicial change of position prior to acquiring knowledge or reason to know of misappropriation that renders a prohibitive injunction inequitable.

(c) In appropriate circumstances, affirmative acts to protect a trade secret may be compelled by court order.

This article focuses on the proper interpretation of subsection (a). Subsection (b) reaches rare situations where public needs or peculiar equities require consideration of a royalty alternative. Such a required royalty might make sense, for example, where national security requires immediate fulfillment of a contract and the trade secret holder is unable timely to provide the necessary equipment, or where a misappropriator is a veterinarian and has already started a course of treatment on particular animals using the misappropriated product. *Cf. Yovatt v. Winyard*, 37 Eng. Rep. 425, 426 (1820) (granting injunction but excepting medicines used to finish course of treatment under progress).

81. 14 U.L.A. 449-51 § 2 cmt. (citing *K-2 Ski Co. v. Head Ski Co.*, 506 F.2d 471 (9th Cir. 1974)).

82. *United Centrifugal Pumps, Inc. v. Cusimano*, 708 F. Supp. 1038, 9 U.S.P.Q. 2d 1171, 1181 (W.D. Ark. 1988) (facially perpetual injunction under Arkansas UTSA); *Aries Information Systems, Inc. v. Pacific Management Systems Corp.*, 226 U.S.P.Q. 440, 443 (Minn. App. 1985) (permanent injunctive relief); *Boeing Co. v. Sierracin Corp.*, 738 P.2d 665, 681-82 (Wash. 1987) (granting relief under Washington UTSA for the life of the trade secret without regard to the defendant's ability to reverse engineer in later years); *cf. Dionne v. Southeast Foam Converting & Pkg., Inc.*, 17 U.S.P.Q.2d 1565, 1569 (Va. 1990) (indefinite injunction until enjoined party establishes that trade secret has ceased and additional lead-time expired); *Wolfe v. Tuthill Corp.*, 532 N.E.2d 1, 3 (Ind. 1988) (remanding for trial court to determine whether to issue indefinite or definite injunction); *Centorr Assoc. v. Tokyo Tokushu Necco, Ltd.*, 1991 U.S. Dist. Lexis 13897 (granting apparently perpetual and punitive relief as remedy after damages hearing upon default, without analysis). This curious reliance on UTSA for facially unlimited injunctions is perhaps based on the singularly unhelpful statement in the Commissioners' Comments that UTSA intended to codify the "results of the better-reasoned cases concerning the remedies for trade secret misappropriation," without describing or listing those cases. UTSA Commissioners' Prefatory Note, 14 U.L.A. 435

ing the lead-time analysis.⁸³

The persistence of the dispute between punitive and lead-time injunctive remedies under both UTSA and the common law is, this article suggests, not only the result of different policy decisions but also a result of the frustration, not always conscious, with the inaccurate compensation often produced by the lead-time remedy, and a concomitant willingness to reach for support to whichever line of authority supports the result the court considers just under the circumstances.

IV. THE INADEQUACIES OF THE CURRENT COMPENSATORY MODEL

Quiescent in the shadow of the punitive/compensatory dispute, the model for determining the appropriate compensatory injunctive relief has remained rudimentary, amorphous, and unpredictable. Should the test for compensatory relief be objective or subjective? How should courts calculate the period of injunctive relief? What impact should bad faith misappropriation have? How should the non-time investments necessary to develop a trade secret affect injunctive and monetary relief? Neither UTSA nor common law jurisdictions have resolved these issues.

Several commentators have addressed aspects of trade secret injunctions, and many have provided useful suggestions, but none has pointed out that a subjective test provides a workable model for calculating the injunctive period based on the date the misappropriator would have commenced legitimate replication. Nor has any commentator advised drawing an inference from bad faith misappropriation in developing a compensatory injunctive remedy.⁸⁴

(1985); see *Wolfe v. Tuthill Corp.*, 532 N.E.2d 1, 2 (Ind. 1988) (reasoning that UTSA codifies the common law).

83. *E.g.*, *Lamb-Weston v. McCain Foods*, 941 F.2d 970, 974-75 (9th Cir. 1991); *Surgidev Corp. v. Eye Technology, Inc.*, 828 F.2d 452, 456-57 (8th Cir. 1987).

84. *E.g.*, M. JAGER, *TRADE SECRETS LAW* chs. 6-7 (1992 Revision) (canvassing cases and interpreting UTSA to set a compromise between *Shellmar* and *Conmar*); L. Samuels & B. Johnson, *The Uniform Trade Secrets Act: The States' Response*, 24 CREIGHTON L. REV. 49 (1990) (canvassing legislative enactments of, and amendments to, UTSA); Comment, *Trade Secret Misappropriation: What is the Proper Length of An Injunction After Public Disclosure?*, 51 ALBANY L. REV. 271 (1987) (favoring lead-time analysis where there is no bad faith and punitive injunctions where the misappropriation is particularly egregious); M. Barclay, Comment, *Trade Secrets: How Long Should an Injunction Last?*, 26 UCLA L. REV. 203 (1978) (proposing an objective analysis). Courts and commentators have sporadically mentioned the non-time investment component of damages but have seldom recognized the interdependence of non-time investments with the calculation of the period of injunctive relief. *E.g.*, M. Barclay, *supra*, at 219 n.70. The few decisions paying some attention to non-time investments, and especially those assessing their relationship to injunctive relief, are a welcome sight, but they often still provide an incomplete remedy and remain a rare exception. A.L.

This section describes the specific problems under current law with these particular aspects of compensatory relief and establishes the need for a better model that accurately compensates the trade secret holder.

A. The Flaws in an Objective, Abstract Approach

Today, courts still generally fail to address whether the standard

Laboratories v. Philips Roxane, 803 F.2d 373, 383 (8th Cir. 1986)(affirming trial court's reduction of non-time investment monetary damages on the ground that the defendant had not used the trade secret research and had instead purchased the same information later from another source); *Syntex Ophthalmics v. Novicky*, 745 F.2d 1423, 1436 (Fed. Cir. 1984)(reversing trial court's award of a twenty-year injunction where evidence included the equivalent of twenty years of labor invested by many people over two chronological years and an expenditure of one million dollars, but not awarding any monetary component of non-time damages); *Anaconda Co. v. Metric Tool & Die Co.*, 485 F. Supp. 410, 419 (E.D. Pa. 1980)(estimating investments necessary for reverse engineering to be one year and \$100,000); *Sperry-Rand Corp. v. Electronic Concepts*, 325 F. Supp. 1209, 1216, 1219 (E.D. Va. 1970)(awarding monetary compensation for non-time investments), *rev'd*, 447 F.2d 1387, 1392-93 (4th Cir. 1971)(wrongfully concluding that the award for non-time investments represented a double recovery of the amount awarded for the plaintiff's lost profit); *Schulenburg v. Signatrol Inc.*, 212 N.E.2d 865, 869 (Ill. 1965)(recognizing that reverse engineering would require time and expense but not including the expense in its analysis); *Analogic Corp. v. Data Translation*, 358 N.E.2d 804, 808 (Mass. 1976)(noting in remanding case for reconsideration of injunctive relief that the misappropriator's avoidance of the "normal costs of invention and duplication" might justify a monetary payment as a condition precedent to concluding injunctive relief).

Many other commentators have advanced models to reflect the competing interests between employers in protecting their trade secrets and employees in freely marketing their personal skills and general knowledge of the trade. B. Kugler, *Limiting Trade Secret Protection*, 22 VAL. U. L. REV. 725 (1988)(proposing that trade secrets be divided into "quasi-patent" secrets of substantial novelty and lesser trade secrets, and allowing implied notice by the employer to bind the employee only for the quasi-patent secrets learned or developed during employment); Spanner, *Trade Secrets Versus Technological Innovation*, 87 TECH. REV. 12 (1984); Note, *A Balanced Approach to Employer-Employee Trade Secret Disputes in California*, 31 HASTINGS L.J. 671 (1980); Note, *Protection of Trade Secrets in the Employer-Employee Relationship*, 39 NOTRE DAME L. REV. 200 (1964); Note, *Trade Secrets, Customer Contacts, and the Employer-Employee Relationship*, 37 IND. L.J. 218 (1962); Comment, *Trade Secret Developed by Employee in the Course of Authorized Research May be Used in Competing with Former Employer*, 74 HARV. L. REV. 1473 (1961). This article does not concentrate directly on this tension. Nevertheless, I believe this article's proposed model distinguishing the treatment of bad faith and good faith misappropriators adequately protects employees who attempt to further their careers in good faith, while appropriately setting a higher standard of proof for bad faith misappropriators. See notes 154-59 & accompanying text *infra* (proposing that bad faith should raise a rebuttable presumption of inability to replicate legitimately). Moreover, the model's use of a subjective standard rather than an objective standard allows employees with high degrees of capability to prove that legitimate replication would have been achieved in a shorter period than average.

for calculating injunctive relief should be objective or subjective.⁸⁵ Many opinions have language at one point suggesting one approach and language another place suggesting the other.⁸⁶ In the absence of clear guidance, courts generally appear to have applied an objective standard, although the approach is often unclear.⁸⁷ Even those cases that appear to claim a subjective approach seldom ask the question a subjective standard requires: Could have and would have the misappropriator legitimately replicated the trade secret technology absent the misappropriation?

UTSA was meant to provide a better-reasoned approach but in fact exacerbates the problem. The Commissioners' Comment to the injunctive provision states that the test should be developed in light of the abilities of "good faith competitors," not in light of the defendant's abilities.⁸⁸ This pressure for an objective injunction contradicts the act's express language, which authorizes injunctive relief for the life of the trade secret plus any lead-time injunction necessary to eliminate the commercial advantage gained from the misappropriation.⁸⁹ This express, albeit general, language is apt to be overborne by the comment's specific encouragement to set the injunction by the efforts of good faith competitors—especially in light of the statute's use of the permissive "may" to describe the maximum injunction.

The objective approach fails to appreciate the significant differences created by the different capabilities and resources of different competitors and thus invites miscalculations of the appropriate injunctive period. The courts most often ask how long some "average" competitor would take to develop the trade secret technology and fail to determine whether that is the time the misappropriator would have taken to develop the technology legitimately without the misappropri-

85. *E.g.*, *Anaconda Co. v. Metric Tool & Die*, 485 F. Supp. 410, 431 (E.D. Pa. 1980); *Brunswick Corp. v. Outboard Marine Corp.*, 404 N.E.2d 205, 207-08 (Ill. 1980); *K-2 Ski Co. v. Head Ski Co.*, 506 F.2d 471, 474 (9th Cir. 1974).

86. *Lamb-Weston, Inc. v. McCain Foods, Ltd.*, 941 F.2d 970, 974-75 (9th Cir. 1991); *Sigma Chemical Co. v. Harris*, 794 F.2d 371, 374-75 (8th Cir. 1986); *Viscofan, S.A. v. U.S. Int'l Trade Comm.*, 787 F.2d 544, 547, 549-51 (Fed. Cir. 1986); *American Can Co. v. Mansukhani*, 742 F.2d 314, 334 n.24 (7th Cir. 1984); *Syntex Ophthalmics v. Novicky*, 745 F.2d 1423, 1435-37 (Fed. Cir. 1984); *Sperry-Rand Corp. v. Electronic Concepts*, 325 F. Supp. 1209, 1216, 1219 (E.D. Va. 1970).

87. *Surgidev Corp. v. Eye Technology, Inc.*, 828 F.2d 452, 456 (8th Cir. 1987); *American Paper & Packaging Products v. Kirgan*, 183 Cal. App. 3d 1318, 1326 (1986); *Brunswick Corp. v. Outboard Marine Corp.*, 404 N.E.2d 205, 207 (Ill. 1980); *Analogic Corp. v. Data Translation, Inc.*, 358 N.E.2d 804, 807-08 (Mass. 1976); *Northern Petrochemical Co. v. Tomlinson*, 484 F.2d 1057, 1059-60 (7th Cir. 1973); *Winston Research Corp. v. Minnesota Mining & Mfg. Co.*, 350 F.2d 134, 141-42 (9th Cir. 1965); *Plant Indus. v. Coleman*, 287 F. Supp. 636, 645 (C.D. Cal. 1968); *Schulenburg v. Signatrol, Inc.*, 212 N.E.2d 865, 869-70 (Ill. 1965).

88. UNIF. TRADE SECRETS ACT § 2 cmt., 14 U.L.A. 450 (1985).

89. See note 80 *supra*.

ated information.⁹⁰ But not all competitors are equally placed to duplicate the trade secret information. Legitimately replicating the trade secret technology requires ingenuity, labor, financial resources, and often various other investments such as specialized equipment. The objective approach thus undercompensates the trade secret holder if the misappropriator has less of the necessary resources than the legitimate competitors or the "average" competitor, and it overcompensates if the misappropriator has greater resources.

The commentators have fallen into the same error.⁹¹ Barclay's model, for example, asserts that the true period of commercial advantage is the period after public disclosure from the time the defendant reaches the market until a legitimate replicator reaches the market. This approach fails to recognize that the period of commercial advantage obtained through misappropriation is the period from the date the misappropriator reached the market using the trade secret until the date the misappropriator, and not an arbitrary legitimate competitor, would have reached the market through legitimate means.

In addition to producing miscalculations of the injunctive period, the objective approach has also encouraged too ready assumptions that misappropriators have the ability to replicate the trade secret legitimately. The objective approach's easy encouragement of broad, casual characterizations, and the concentration of the *Shellmar* and *Conmar* cases on postdisclosure cases, have led courts calculating periods of injunctive relief to assume, with little or no proof, that the misappropriator could have replicated the trade secret technology absent the misappropriation.

Shellmar and *Conmar* produced general rules the courts applied to all situations where any trade secret information was available to the public—without distinguishing between a patent that discloses the entire trade secret, the sale of a product that allows little or no reverse engineering potential, the sale of a product providing relatively simple reverse engineering, and the press release that provides bits of information. Where the trade secret has been fully disclosed to the public, usually by a patent, the trade secret terminates and creates the precise issue addressed in *Shellmar* and *Conmar*. This full disclosure is a public dedication of the trade secret. Relief fashioned in this situation can start from the unquestioned proposition that now no trade secret exists.⁹²

90. See notes 76-77 & accompanying text *supra*.

91. See, e.g., Barclay, *supra* note 12, at 219.

92. Of course, the misappropriator may not be able to invest the resources necessary for a good faith competitor to take advantage of the trade secret information, even after it becomes public. In this instance the misappropriator should still be enjoined from using the trade secret information until it attains the resources a good faith competitor would require. See text accompanying notes 112-14 *infra*.

Where the trade secret holder has not disclosed the entire secret, however, such as the sale of a product that incorporates the trade secret technology, fashioning appropriate injunctive relief is substantially more difficult, and the *Shellmar* and *Conmar* approaches oversimplify this task. An example of public dedication of a trade secret would be handing someone the formula for Coca-Cola. This is dramatically different from selling Coca-Cola to the public, recognizing that anyone is free to try to figure out how to copy it. No one has done so.⁹³

The objective, abstract approach thus assumes without proof that the misappropriator could step into the shoes of a legitimate competitor and reverse engineer the trade secret, or even step into the shoes of the trade secret inventor and independently develop the trade secret.⁹⁴ This may provide the misappropriator a technology it could never have achieved legitimately.

Courts concerned to avoid undercompensation may proceed too far in the opposite direction.⁹⁵ In order to deprive the misappropriator of the commercial advantage achieved by the misappropriation in this setting, one must ask a question unnecessary where the trade secret has been dedicated to the public: Could the misappropriator have reverse engineered or independently developed the trade secret technology absent the misappropriation? The more novel, sophisticated, and creative the technology, the more unlikely that the misappropriator could have legitimately recreated it. The lead-time approach, led by *Winston Research*, fails to ask this question.

93. E. KAHN, *THE BIG DRINK: THE STORY OF COCA-COLA*, 103-04 (1960)(no successful replication of formula for Coca-Cola); see also *Boeing Co. v. Sierracin Corp.*, 738 P.2d 665, 681-82 (Wash. 1987)(affirming indefinite injunction where no evidence of legitimate replication existed although airplane cockpit window had been in use several years); *Curtiss-Wright Corp. v. Edel-Brown Tool & Die Co.*, 407 N.E.2d 319, 326 (Mass. 1980)(despite sale and use for more than forty years no competitor had legitimately replicated Curtiss-Wright's airplane engine piston).

94. *E.g.*, *Schulenburg v. Signatrol, Inc.*, 212 N.E.2d 865, 869-70 (Ill. 1965)(implying that length of injunction should follow the time taken by a Minnesota company that legitimately replicated the trade secrets); *Sigma Chemical Co. v. Harris*, 794 F.2d 371, 375 (8th Cir. 1986); *Nat'l Rejectors, Inc. v. Trieman*, 409 S.W.2d 1, 43 (Mo. 1966); *Winston Research Corp. v. Minnesota Mining & Mfg. Co.*, 350 F.2d 134, 142 (9th Cir. 1965)("approximate period" a "legitimate competitor" would require to develop the trade secret technology); *Greenberg v. Croydon Plastics Co.*, 184 U.S.P.Q. 27, 28 (E.D. Pa. 1974)(ordering injunction to extend until third party legitimately replicates the trade secret technology, without any consideration of defendant's abilities).

95. *E.g.*, *Centorr Assoc. v. Tokyo Tokushu Necco, Ltd.*, 1991 LEXIS 13897 (granting indefinite injunction as remedy after default, without discussion of appropriate length, despite California's passage of UTSA); *Saunders v. Florence Enameling Co.*, 540 So. 2d 651, 655 (Ala. 1988)(granting indefinite relief and prohibiting defendant from independent replication); *Aries Info. Sys., Inc. v. Pacific Mgmt. Sys. Corp.*, 226 U.S.P.Q. 440, 443 (Minn. Ct. App. 1985)(granting indefinite relief).

The failure to highlight the distinction between termination of the trade secret by full public disclosure, and the sale of a product incorporating it, has thus unduly minimized the importance of asking first whether the misappropriator could legitimately develop the trade secret technology, and then whether the misappropriator would have taken the same amount of time for legitimate replication as other competitors. This erroneously encourages definitive injunctions even where there is no or little evidence that the defendant could in the given period reverse engineer the trade secret technology by legitimate means.

B. Calculating the Length of the Injunction

The preceding discussion addressing objective or subjective injunctions focused on the test to determine when an injunction should end: The courts determine when the average competitor reached the market, rather than the time the misappropriator would have itself reached the market absent the misappropriation.⁹⁶ This subsection focuses on the problems courts face in selecting the proper date to use for calculating the commencement of the injunctive period.

In an ideal setting, of course, the injunction would start as soon as the misappropriation occurred, prevent any use or disclosure, and continue until the misappropriator would have legitimately replicated the trade secret without the aid of the misappropriation. In practice, however, the trade secret holder must learn of the misappropriation, attempt commercial redress if feasible and desirable, and then file a lawsuit. After this, the trade secret holder's best result is a temporary restraining order, followed by a preliminary injunction.⁹⁷ If this is unsuccessful, the trade secret holder will have to wait for equitable relief until final judgment, or perhaps even an appellate decision.

As a practical matter, then, the actual injunction will commence only at the arbitrary time when a preliminary or permanent injunction is granted.⁹⁸ The actual injunction will thus commence after the ideal injunction would have begun, and may not commence (depending on the length of time required to discover the misappropriation and prosecute the trade secrets action) until after the ideal injunction would have concluded. How should the court determine the length of the actual injunction?

To place the misappropriator and trade secret holder in the positions they would have occupied absent the misappropriation, the best the court can do is to hold the misappropriator out of the market for

96. See notes 76-77, 90 and accompanying text *supra* (courts' generally objective approach).

97. See notes 151-53 & accompanying text *infra*.

98. See note 100 & accompanying text *infra*.

the same period of time it gained by the misappropriation. The court can enjoin the misappropriator for the correct length of time, but the commencement and expiration dates of the injunction will be later than they would have been under the ideal injunction.⁹⁹

Courts have calculated the injunctive time period from several different dates, including the date of the misappropriation, the date of public disclosure of the trade secret, the date a preliminary injunction was first entered, and the date of final judgment issuing the permanent injunction.¹⁰⁰

The courts calculating the period of the actual injunction from the date of misappropriation have seldom offered any rationale for this approach.¹⁰¹ Perhaps it is an outgrowth of the understanding that an ideal injunction would have started on this date. If one misappropriates a trade secret, one should have to wait to use it until one would have obtained it legitimately. There are, nevertheless, several flaws with this simplistic approach.

First, in the real world a misappropriator obtains the benefit of the trade secret from the date of the misappropriation until a court enjoins its use. Commencing the injunctive period from the date of the

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99. *See, e.g., Premier Indus. Corp. v. Texas Indus. Fastener Corp.*, 450 F.2d 444, 448 (5th Cir. 1971)(holding that equitable relief enforcing a two-year noncompetition agreement could endure longer than two years after the employee left the firm to remedy the period during which the employee violated the agreement).
100. *E.g., Lamb-Weston v. McCain Foods*, 941 F.2d 970, 974-75 (9th Cir. 1991)(calculating from date of preliminary injunction and from date of misappropriation, noting that in that instance both produced roughly the same results); *Integrated Cash Mgmt. Servs. v. Digital Transactions*, 920 F.2d 171, 175 (2d Cir. 1990)(date of preliminary injunction); *A.L. Laboratories, Inc. v. Philips Roxane, Inc.*, 803 F.2d 378, 385 (9th Cir. 1986)(date of misappropriation); *Syntex Ophthalmics, Inc. v. Novicky*, 745 F.2d 1423, 1437 (Fed. Cir. 1984)(holding that injunction should run eight years from misappropriation or four years from preliminary injunction); *K-2 Ski Co. v. Head Ski Co.*, 506 F.2d 471, 474-75 (9th Cir. 1974)(remanding to trial court to determine whether injunctive period should be calculated from date of preliminary or permanent injunction); *Winston Research Corp. v. Minnesota Mining & Mfg. Co.*, 350 F.2d 134, 143 (9th Cir. 1965)(date of final judgment, noting for support that this date was close to the date of public disclosure of the trade secret); *Sperry-Rand Corp. v. Electronic Concepts*, 325 F. Supp. 1209, 1219-20 (E.D. Va. 1970)(date of final judgment); *Plant Indus. v. Coleman*, 287 F. Supp. 636, 645 (C.D. Cal. 1968)(date of memorandum opinion after trial); *Brunswick Corp. v. Outboard Marine Corp.*, 404 N.E.2d 205, 207 (Ill. 1980)(date of final judgment); *Sanitary Farm Dairies, Inc. v. Wolf*, 112 N.W.2d 42 (Minn. 1961)(date of preliminary injunction); *see Northern Petrochemical Co. v. Tomlinson*, 484 F.2d 1057, 1059-61 (7th Cir. 1973)(affirming denial of preliminary injunction sought for a 1965 misappropriation on the ground that the period necessary for legitimate replication had expired before plaintiff sought preliminary injunction).
101. *E.g., Lamb-Weston v. McCain Foods*, 941 F.2d 970, 975 (9th Cir. 1991); *but see A.L. Laboratories, Inc. v. Philips Roxane, Inc.*, 803 F.2d 378, 385 (9th Cir. 1986)(correctly recognizing that the date of misappropriation is not conclusive, but is the correct date only if the misappropriator would have commenced legitimate replication on that date absent the misappropriation).

misappropriation effectively deducts this period—even though the misappropriator has been using the trade secret technology all along.

Those who calculate the period from the date of misappropriation are effectively making two blanket assumptions that are often erroneous. First, they assume that the misappropriator could have legitimately obtained the product to reverse engineer (or could have otherwise commenced legitimate replication) on the date of misappropriation. Second, they assume that the misappropriator would have started legitimate replication efforts on that date if they had not had the opportunity to misappropriate.

If the product was not available for legitimate reverse engineering on the date of the misappropriation, for example, calculating the injunctive period from that date provides the misappropriator a head start over legitimate competitors for the period between the misappropriation and the date of public availability of products for reverse engineering.

Even if the product were available on the date of the misappropriation, the misappropriator might not have started legitimate replication on that date. It may have been only the opportunity to misappropriate that led to the decision to develop a product to match the trade secret holder's. In these cases, calculating the period from the date of misappropriation rewards the misappropriator with an assured entry into the market, with no reverse engineering risks, after a waiting period that starts before the misappropriator would have in fact started any legitimate replication efforts. Unless the misappropriator can establish both the intent and the ability to replicate absent the misappropriation, there is no justification for calculating the period from the date of misappropriation.¹⁰²

C. Bad Faith Misappropriators

Third, the cases fail to recognize, at least expressly, that the bad faith of a misappropriator does have a rational impact on the fashioning of compensatory relief. If the bad faith misappropriator could have legitimately replicated the trade secret technology at all, or with a commercially viable level of investment, it is less likely that the misappropriator would have chosen to risk the possible litigation created by the misappropriation. It is therefore reasonable to infer, absent contrary evidence, that the misappropriator could not have reverse en-

102. Innocent misappropriators are likely to be able to prove that they were engaged in, or already planning, legitimate replication efforts at the time of the misappropriation. Their corporate planning structure, board meetings, and research and development efforts may all evince plans for legitimate replication. Bad faith replicators, on the other hand, may well have simply capitalized on the opportunity to misappropriate. In this instance an indefinite injunction requiring legitimate replication is appropriate. See notes 154-59 & accompanying text *infra*.

gineered the trade secret, at least at the same level of investment as the trade secret holder.

D. Non-time Investments

Fourth, current lead-time analysis generally ignores the other variables in research and development that could affect the amount of time necessary to develop the trade secret information.¹⁰³ Even where the courts recognize that labor, capital, and other resources not measured (or only partially measured) by time are necessary to create a trade secret, the courts have not developed a uniform model for evaluating the impact of those investments on trade secret remedies and their interdependence with the time necessary for legitimate replication.

V. FACIALLY UNLIMITED INJUNCTIONS FACE SIMILAR PROBLEMS

There are courts, of course, that attempt to avoid the lead-time analysis by issuing injunctions that are apparently perpetual in length, often justifying the relief on punitive grounds. Indefinite injunctions have been issued both when the trade secret has been fully disclosed and when only limited information has been made available to the public.¹⁰⁴

Very few of these injunctions, however, are truly perpetual, and their indefinite character merely puts off the question of appropriate standards for their termination.¹⁰⁵ Opinions often note the possibility that the court can change the terms of the injunction upon application but do not describe the showing that would be required.¹⁰⁶

Indefinite injunctions also require a model to determine the appropriate time for their termination. Avoiding this issue in facially unlimited injunctions risks their becoming perpetual in fact, whether or

103. *E.g.*, Brunswick Corp. v. Outboard Marine Corp., 404 N.E.2d 205 (Ill. 1980); Winston Research Corp. v. Minnesota Mining & Mfg. Co., 350 F.2d 134 (9th Cir. 1965); Northern Petrochemical Co. v. Tomlinson, 484 F.2d 1057 (7th Cir. 1973); Sigma Chemical Co. v. Harris, 794 F.2d 371 (8th Cir. 1986).

104. See notes 79, 82 & accompanying text *supra*.

105. *But see* Elcor Chem. Corp. v. Agri. Sul, 494 S.W.2d 204, 212-13 (Tex. Ct. App. 1973)(expressly perpetual).

106. *E.g.*, Wolfe v. Tuthill Corp., 532 N.E.2d 1, 3 (Ind. 1988); Curtiss-Wright Corp. v. Edel-Brown Tool & Die Co., 407 N.E.2d 319, 326 (Mass. 1980); *cf.* Analogic Corp. v. Data Translation, 358 N.E.2d 804, 807-08 (Mass. 1976)(describing several vague and general factors for the trial court to consider when crafting injunctive relief); Boeing Co. v. Sierracin, 738 P.2d 665, 682 (Wash. 1987)(noting Washington statutory authority providing for termination of injunction only when trade secret ceases); Kewanee Oil Co. v. Bicron Corp., 416 U.S. 470, 473-74 (1974)(affirming injunction designed to terminate when trade secret ceases).

not that was intended.¹⁰⁷ Courts that revisit and terminate such injunctions without any guidance will produce unpredictable and inconsistent results. Where the injunction should compensate, no model is provided to determine the appropriate length. Even where the injunction is designed to punish, no guidance tells the court how much is enough.

Courts determining injunctive relief are thus faced with case law and statutory precedent that offer inadequate alternatives for injunctive relief: An objective lead-time injunction that may not match the commercial advantage gained by the misappropriator, and an indefinite injunction without guidance as to whether or when it should terminate.

Many courts those affirming lead-time and facially unlimited injunctions also afford the trial court broad discretion under the totality of the circumstances in each case.¹⁰⁸ This approach provides little guidance and produces arbitrary injunctions.

The continued support for punitive injunctions, even when the common law and UTSA authorize punitive damages and punitive awards of attorney's fees, may in part reflect an unarticulated judicial conviction that lead-time remedies as historically fashioned are insufficient to erase the commercial advantage gained by the misappropriator. A review of the cases suggests that indefinite injunctions are often granted in a situation where the misappropriator could not establish under a subjective test that it could have legitimately devel-

107. *E.g.*, *Centorr Assoc. v. Tokyo Tokushu Necco, Ltd.*, 1991 LEXIS 13897. It also risks arbitrary results and straightforward error. *E.g.*, *Greenberg v. Croydon Plastics Co.*, 184 U.S.P.Q. 27, 28 (E.D. Pa. 1974)(ordering injunction to extend until third party legitimately replicates the trade secret technology, without any consideration of defendant's abilities or actions).

108. *Boeing Co. v. Sierracin*, 738 P.2d 665, 675, 681-82 (Wash. 1987); *Saunders v. Florence Enameling Co.*, 540 So. 2d 651, 655 (Ala. 1988)(prohibits independent development by defendant and no guidelines for termination); *Richardson v. Suzuki Motor Co.*, 806 F.2d 1226, 1247 (Fed. Cir. 1989)(no guidelines, an "appropriate" injunction); *Wolfe v. Tuthill Corp.*, 532 N.E.2d 1, 3 (Ind. 1988)(express power to revisit but no guidelines); *Curtiss-Wright Corp. v. Edel-Brown Tool & Die Co.*, 407 N.E.2d 319, 326 (Mass. 1980)(no guidelines beyond "substantial change in circumstances"); *Valco Cincinnati Inc. v. N & D Machining Serv. Inc.*, 492 N.E.2d 814, 820 (Ohio 1986); *Vigtron, Inc. v. Ferguson*, 419 A.2d 1115, 1119 (N.H. 1980); *Eastern Marble Prod. Corp. v. Roman Marble Inc.*, 364 N.E.2d 799, 803-04 (Mass. 1977)(noting broad discretion under Massachusetts common law while reversing and remanding to determine whether trade secret still exists and indefinite permanent injunction remains in order); *Aerosonic Corp. v. Trodyne Corp.*, 402 F.2d 223, 227 (5th Cir. 1968); *cf. Viscofan, S.A. v. United States Int'l Trade Comm.*, 787 F.2d 544, 548-49 (Fed. Cir. 1986)(reciting trial court's broad discretion in affirming ten-year Federal Trade Commission's trade secrets injunction prohibiting imports); *Analogic Corp. v. Data Translation*, 358 N.E.2d 804, 807-08 (Mass. 1976)(revisiting the issue of injunctive relief upon the enjoined party's claim of changed circumstances, and holding that a lead-time injunction is the minimum relief, but bad faith could justify greater relief).

oped the trade secret technology.¹⁰⁹ One can only speculate, of course, about whether these cases would have had different outcomes had the courts been invited to apply a subjective test to determine the length of the injunction.

In similar fashion, the support for wide trial court discretion may reflect an unwarranted perception that more helpful guidelines for determining commercial advantage are unavailable. The cases may also reflect an undeclared, and currently unexpressed, recognition that bad faith does have a legitimate impact on the analysis of the period necessary to provide compensatory relief.

VI. THE SOLUTION

With this review of the deficiencies of the objective lead-time injunction, the compensatory model for an appropriate remedy is straightforward—a subjective lead-time injunction based on the dates the misappropriator would have commenced and concluded legitimate replication. In considering the ability of the misappropriator to reverse engineer a trade secret, the court should infer, absent contrary evidence, that bad faith evidences an inability to replicate the trade secret legitimately. The damages should also include compensation that reflects non-time investments.

This model will make the plaintiff whole by ensuring that the plaintiff maintains the commercial advantage she achieved in developing the trade secret. Moreover, this improvement will not exact significantly greater judicial or legal costs than are currently borne under the objective lead-time model. Finally, both UTSA and the common law authorize, and in fact invite, this improvement.

A. The Subjective Test

All trade secret injunctions should share some basic characteristics. In the absence of the trade secret's demise, injunctions should, of course, always prohibit the defendant from disclosing the trade secret. In addition, injunctions should cease after termination of the trade secret and any additional period necessary to eliminate the misappropriator's commercial advantage over legitimate replicators.¹¹⁰ On the other hand, injunctions should never prohibit the defendant from attempting to reproduce the benefit of the trade secret by all permissible means, including reverse engineering.¹¹¹

109. *E.g.*, *Boeing Co. v. Sierracin*, 738 P.2d 655, 681-82 (Wash. 1987); *Valco Cincinnati, Inc. v. N & D Machining Serv., Inc.*, 492 N.E.2d 814, 820 (Ohio 1986); *Aerosonic Corp. v. Trodyne Corp.*, 402 F.2d 223, 228 (5th Cir. 1988).

110. This standard is promulgated expressly by UNIF. TRADE SECRETS ACT § 2, 14 U.L.A. 449 (1985); see note 80 *supra*.

111. All permissible means include any approach that does not use the misappropri-

The court should ask whether and when the particular misappropriator, and not some third party or the trade secret holder, could and would have legitimately replicated the trade secret at issue. There is no reason to assume that the trade secret holder or legitimate replicators developed the technology from the same starting points as the misappropriator. Was the misappropriator in a position to invest the same number of people in the effort, or people of the same capabilities, or the same laboratory or factory equipment, or the same amount of financial resources?¹¹²

Many misappropriators either never could have developed the technology legitimately or would have taken a different period of time, or different level of resources, than the legitimate replicator. The misappropriator may well have chosen to misappropriate because it failed to develop the technology legitimately, or never hoped to develop the technology legitimately. A misappropriator new to the industry may misappropriate the technology to leapfrog to the front of the industry, gaining the basic industrial knowledge as well as the trade secret technology. The misappropriator may be a start-up or a small company without the capital to develop the technology.¹¹³ Assuming that these misappropriators can amass the "average" resources available in the industry often undervalues the commercial advantage they secured.

On the other hand, the legitimate replication period will also often be shorter than the original trade secret holder's development period and may even be shorter than the period taken by earlier replicators.

ated information. In practical terms, this will require the misappropriator to "subcontract" the effort to individuals or entities who are not tainted by the misappropriated information. Anyone who has been exposed to the misappropriated information cannot help but use that information. *E.g.*, *Winston Research Corp. v. Minnesota Mining & Mfg. Co.*, 350 F.2d 134, 144 (9th Cir. 1965); *Stone v. Goss*, 55 A. 736, 738 (N.J. 1903). In the same manner, any equipment, literature or material produced with the benefit of the misappropriated information is tainted. Of course, the misappropriator will have to recognize that the propriety of this subcontracting effort will be rigorously tested should it be successful, and will have to keep engineering or laboratory notebooks, financial records, labor records, and other regularly kept business entries of the investments incurred in the reverse engineering process. *E.g.*, *Boeing Co. v. Sierracin Corp.*, *slip op.* at 3 (Wash. Sup. Ct., Case No. 84-2-11826-1, July 31, 1985)(providing misappropriator an opportunity to prove it could develop the trade secret technology without using the trade secret), *supersedeas bond denied* *Boeing Co. v. Sierracin Corp.*, *slip op.* (Wash. 1987)(noting misappropriator's failure to develop trade secret technology independently), *aff'd* 738 P.2d 665 (Wash. 1987). *But see, e.g.*, *Saunders v. Florence Enameling Co.*, 540 So. 2d 651, 655 (Ala. 1988)(prohibiting independent development of the trade secret technology); *Aerosonic Corp. v. Trodyne Corp.*, 402 F.2d 223, 226-28 (5th Cir. 1968).

112. See notes 160-68 & accompanying text *infra*.

113. *Winston Research Corp. v. Minnesota Mining & Mfg. Co.*, 350 F.2d 134, 138 (9th Cir. 1965)(startup); *Sperry-Rand Corp. v. Electronic Concepts*, 325 F. Supp. 1209, 1219 (E.D. Va. 1970)(small).

If a trade secret holder sells a product susceptible to reverse engineering, the misappropriator could have acquired a legitimate head start from an analysis of the publicly available product. In a similar manner, the products of legitimate replicators might provide a boost to later replicators. A replicator with great resources, or with the advantage of newly available technology, may be able to shorten the legitimate replication period.

The period the misappropriator would have taken to legitimately develop the trade secret technology is thus necessarily a subjective determination. The development time taken by the trade secret holder or third-party replicators may be relevant but only to the extent it assists in determining the time the misappropriator would have taken.

There is, of course, no sure way to measure this period except by requiring the defendant to reverse engineer or independently reproduce the product without benefit of the trade secrets. If the misappropriator cannot prove the ability to reverse engineer in a particular time period, he should be enjoined from its use until he actually reverse engineers the technology. This places the misappropriator in precisely the position occupied by legitimate replicators. It prevents misappropriators from stealing what they cannot make themselves and then simply biding their time during the period necessary for some "average" competitor to replicate the technology legitimately.

This makes compensatory sense for both good and bad faith misappropriators. Absent contrary evidence, it is unlikely that bad faith misappropriators would have begun legitimate replication efforts at the time they misappropriated the trade secrets, or that they would have completed replication within the same period as legitimate replicators. Innocent misappropriators, such as those who purchase technology in good faith and use due diligence to develop that technology, are more likely to prove they would have legitimately replicated the trade secret in a definite period.¹¹⁴ Nevertheless, if innocent misappropriators cannot prove they would have replicated the technology legitimately, a better result would seem to be a royalty injunction that allows them to market the product under the name of the trade secret holder until the innocent misappropriator has received a fair return on the innocent, but hapless, investment.¹¹⁵ To continue using the trade secret after obtaining this return, the misappropriator should, like any other misappropriator, be required to prove the ability to reverse engineer within a given period, and failing that should be enjoined until it can actually reverse engineer the trade secret by independent means.

While the misappropriator's ability to prove its capability to re-

114. See note 102 & accompanying text *supra*.

115. See UNIF. TRADE SECRETS ACT § 2(b), 14 U.L.A. 449 (1985).

verse engineer will vary with the circumstances, a review of the range of likely situations will afford some indication of likely injunctive periods. The subjective test will produce different results depending upon the information publicly available about the trade secret technology, the novelty of that technology, and the capabilities and resources of the misappropriator. The amount of public information available to the misappropriator falls into three general categories: no information, partial information revealed by the trade secret holder (for example, by express disclosure in press releases or indirectly through sales of a product susceptible to reverse engineering), and complete public disclosure and termination of the trade secret, often by way of the grant of a patent on the technology.

1. *No Information*

Where the trade secret holder has disclosed no public information, and no replicators have legitimately developed the technology, the compensatory remedy will often be an indefinite injunction that prohibits disclosure or use of the trade secret until the misappropriator independently replicates the trade secret. This is the proper measure of the commercial advantage obtained by the misappropriator where the misappropriator cannot prove it could and would have successfully reverse engineered or independently reproduced the product or process without the trade secret information. If the misappropriator has the capability for efficient legitimate replication, that will shortly be borne out. If the misappropriator cannot replicate the technology, that, too, is revealing.

The indefinite injunction will occur most often in two situations where no information has become public. First, where the misappropriation occurs at the development stage and no product or other information is publicly available.¹¹⁶ Second, where a product incorporating the trade secret is marketed, but commercial use does not expose the trade secret to feasible—even if time- and cost-intensive—reverse engineering. While the implausibility of reverse engineering may in certain instances seem easy to ascertain,¹¹⁷ it is important for courts to be aware that even where the possibility of reverse engineering might seem straightforward from a layperson's view of modern science, it has not always been achieved.¹¹⁸

116. *Brunswick Corp. v. Outboard Marine Corp.*, 404 N.E.2d 205, 206-07 (Ill. 1980); *Aerosonic Corp. v. Trodyne Corp.*, 402 F.2d 223, 225-26 (5th Cir. 1968); *Sperry-Rand Corp. v. Electronic Concepts*, 325 F. Supp. 1209, 1212-17 (E.D. Va. 1970); *Syntex Ophtalmalics, Inc. v. Novicky*, 745 F.2d 1423, 1426-27 (Fed. Cir. 1984).

117. *E.g.*, *Plant Indus. Inc. v. Coleman*, 287 F. Supp. 636, 645 (C.D. Cal. 1968) (trade secret process for manufacturing citrus peel products with long shelf life considered "simple" by modern science and industry").

118. See note 93 *supra*.

Providing a lead-time injunction with a definite termination date would unfairly benefit misappropriators facing these two situations. The assumption that replication will occur at all, and especially within a particular period, is highly speculative in this setting. A lead-time injunction would nevertheless guarantee the success of a misappropriator's replication effort, placing it ahead of the starting point for legitimate competitors and assuring the misappropriator that its development effort will not be futile.

This is especially true of trade secrets that are highly novel. Where no third party has successfully reverse engineered or independently developed the technology, there should be significant skepticism about the misappropriator's hypothetical contentions of successful independent development. The more novel the trade secret, the more likely that skepticism is appropriate.

In a similar manner, the greater the misappropriator's deficits in the necessary investments, in money, equipment, talent, or commercial testing, the more likely that skepticism is appropriate.¹¹⁹

There will, of course, be objections to this approach. It will be said that requiring untainted subcontracting exacts a cost upon the misappropriator's ability to utilize her unique talents as an employee. This is true. Nevertheless, the bad faith misappropriator has already evinced her lack of faith in her own ability to develop the trade secret technology by legitimate means. And in the event she can prove she would have legitimately replicated the technology, she can still receive an injunction for a definite period.¹²⁰

Requiring untainted reverse engineering or independent development is also unlikely to penalize the innocent misappropriator unfairly. She also has an opportunity to prove that she could have legitimately replicated the technology within a definite period. An "innocent" misappropriator who purchased the trade secret technology from a bad faith misappropriator also has a cause of action against the bad faith misappropriator for the damage she incurred.

Moreover, purchasers of technology have a duty to exercise reasonable due diligence to ascertain the legitimacy of the purchase. Consider the common factual situations that produce innocent misappropriation. These occur by and large in the purchase of technology in the good faith belief that the seller obtained the technology appropriately and has the right to sell it.¹²¹ Where a buyer decides to purchase technology rather than develop the technology, the buyer has already decided the technology has some value beyond that readily available in the industry and should be readily aware of the need to

119. See notes 160-68 & accompanying text *infra*.

120. See notes 127-41, 154-59 & accompanying text *infra*.

121. See, e.g., RESTATEMENT OF TORTS § 758 (1939) (providing that purchaser of technology without notice of misappropriation is not liable for its use prior to notice).

determine the technology's provenance. Where the misappropriator is hiring an employee because of the employee's special technical knowledge, the buyer also is aware of the need to determine whether that knowledge is part of the general skills of that position, and if not, whether the employee or the previous employer is entitled to take advantage of the specialized knowledge.

Finally, innocent misappropriation is least likely to occur where there are no legitimate replicators of the trade secret, for in that instance the need for rigorous due diligence prior to purchase is the most obvious. Where no one has replicated a valuable trade secret, such as the Coca-Cola formula or the Curtiss-Wright piston,¹²² or where a prior employer has been developing a particular technology, it is much less likely that the special technology advertised for sale is the legitimate property of the seller than it is when several people or entities in an industry have developed the same new edge. It is reasonable to expect a purchaser in good faith to require substantial evidence from the seller that establishes legitimate replication.¹²³ Where the purchaser exercises no such due diligence, one may reasonably question the purchaser's good faith.

2. *Some Public Information*

Where there is publicly available information, but no termination of the trade secret, evidence regarding reverse engineering or independent development by third parties is relevant but not dispositive.¹²⁴ The number of third parties who have replicated the technology, and their investments made to achieve that result, must be compared with the misappropriator's ability to make the same investments.

122. See note 93 & accompanying text *supra*.

123. Where an employee leaves a company with knowledge of a secret development program, it will be difficult for the new employer to determine the veracity of the employee's claims of independent development. Here, however, the new employer has the ability to determine what contractual arrangement, if any, existed between the employee and her old company, and the new employer can proceed against the employee, should the employee mislead the new employer. Rather than having to establish fraud, the new employer may wish to bind the new employee to an indemnity agreement holding the new employer harmless from successful claims of trade secret misappropriation by the employee. The inclusion of such a clause will encourage both employer and employee to consider realistically the possibility of misappropriation. While this result is not perfect, given the admitted difficulty of identifying trade secrets and the burden placed on employee movement, it is better than authorizing a misappropriator to compete with the trade secret holder at a definite future time based solely on its misappropriation of the holder's trade secret, and not on its proven ability to engage in legitimate replication.

124. *E.g.*, *Schulenberg v. Signatrol, Inc.*, 212 N.E.2d 865, 869-70 (Ill. 1965)(third party had reverse engineered signal flasher technology).

The misappropriator will usually have greater or fewer resources than some abstract average of legitimate replicators, and the injunctive period should vary accordingly.¹²⁵ The more novel or investment-intensive the technology, the more likely that actual replication should be required.

Where there is no public information but third parties have independently replicated the trade secret technology, it will be more difficult to determine whether the defendant has the capability to legitimately replicate the trade secret, as others have. This situation will occur rarely and can be treated for most purposes in the same manner as the situation where public sale of a product that incorporates the trade secret provides useful information for legitimate reverse engineering. Of course, the lack of publicly available information will make it less likely that a definite-period injunction will issue than in a situation where a product on the market assists those attempting reverse engineering. As a general proposition, a small number of replicators of a sophisticated and creative technology in a large industry would suggest, all other things being equal, that the misappropriator should face an indefinite injunction that requires it to produce the technology legitimately. A large proportion of legitimate replicators in a given industry, or trade secret technologies of little novelty, would be more likely addressed by an injunction for a definite period, based on the misappropriator's resources compared with other developers of the technology.

3. *Post-Disclosure Cases*

The final category of cases is the post-disclosure category of cases. This is the category that spawned both *Shellmar* and *Conmar*, and is the only type of case to which they should have been applied. The essential disagreement in those cases was whether there was justification to enjoin the misappropriator after the trade secret had ceased.¹²⁶ Where the trade secret is fully disclosed, the injunction should calculate the time necessary for the misappropriator, and not some abstract average legitimate competitor, to reach the market after learning the trade secret.

125. *E.g.*, *Sperry-Rand Corp. v. Electronic Concepts*, 325 F. Supp. 1209, 1219 (E.D. Va. 1970)(noting impact of company's small size on analysis of length of injunction); see notes 160-68 & accompanying text *infra*.

126. See notes 60-70 & accompanying text *supra*. Courts often suggest that bad faith provides that justification. Without opining on whether bad faith should ever allow an injunction longer than the commercial advantage obtained by the misappropriator, this article proposes the appropriate effect of bad faith on compensatory trade secret injunctions. See notes 154-59 & accompanying text *infra*.

B. Calculating the Length of the Injunction

1. *Discerning the Legitimate Replication Period*

Whenever the court sets a definite period, it must make the plaintiff whole by placing both plaintiff and misappropriator in the positions they would have occupied absent the misappropriation. The injunction must run for the period from the defendant's actual replication of the trade secret product or service (usually by marketing the product) to the point at which the defendant would have replicated the product or service through legitimate means.¹²⁷ This difference is the period of commercial advantage produced by the misappropriation. It prohibits commercial use of the replicated trade secret for the same length of time the misappropriator would have been without that technology had it legitimately replicated the trade secret.

This calculation assumes the defendant would have commenced legitimate replication on the same day the defendant misappropriated the trade secret.¹²⁸ If, however, the defendant would not have commenced legitimate replication until a later date, then the defendant has gained a greater advantage.¹²⁹ For example, if the defendant would not have commenced legitimate replication until two months after the misappropriation, it would have reached the market two months later than if it had commenced legitimate replication on the

127. It may be helpful to show this schematically:

| | |
|--|---|
| _____ ~ | |
| Date of misappropriation | Date product is marketed using the misappropriated trade secret |
| _____ ~ | |
| Date legitimate replication would have commenced absent misappropriation | Date product would have been marketed absent misappropriation |
| _____ ~ | |
| Length of injunction | |

128. See, e.g., *A.L. Laboratories, Inc. v. Philips Roxane, Inc.*, 803 F.2d 378, 385 (9th Cir. 1986).

129. Several differing situations in the marketplace will produce later commencement dates for legitimate replication. For example, at the time of the misappropriation, the misappropriator might not have the financial or human resources, or the machinery, to take on the larger task of legitimate replication. The commencement date for those lacking such resources must be delayed at least until those resources are available. Even on that date would the misappropriator have chosen to attempt legitimate replication? Another example is a business formed, or a division added to an existing business, simply to capitalize on the misappropriated trade secret. In these situations, the opportunity for the misappropriation may be the only reason the business was started. Legitimate replication would usually have commenced later, if at all.

date of the misappropriation. To calculate the injunction, then, one must determine two periods: (a) when the defendant would have commenced and concluded legitimate replication, and (b) when the defendant reached the market after misappropriating the trade secret.¹³⁰

Take an example from the case law. In *Winston Research*¹³¹ the Mincom Division of Minnesota Mining and Manufacturing had developed high fidelity precision tape recorders. In May 1962, Mincom employees misappropriated the trade secret design for the recorders, left Mincom, and established Winston Research. Winston Research produced a competing product in July 1963.¹³²

To determine the appropriate injunction, one must determine how much later, if at all, Winston Research would have legitimately replicated the tape recorders in the absence of the misappropriation. Here the case provides little help, because that question was not asked. It is possible that Winston Research would never have been formed absent the opportunity to misappropriate the trade secrets. In that event, an indefinite injunction that required legitimate replication would be appropriate.

On the other hand, Winston Research might be able to prove that at some point it would have been formed and commenced legitimate replication. The earliest likely date for this would have been March 1964 when Mincom's trade secrets were disclosed through an amalgamation of public announcements, demonstrations, and sales of machines that incorporated the trade secrets.¹³³

If Winston Research had commenced reproduction in March 1964, the next question would be how long Winston Research would have taken to replicate the product legitimately. Here, the opinion again

130. See note 127 *supra*.

131. 350 F.2d 134 (9th Cir. 1965); see notes 71-77 & accompanying text *supra*.

132. It is helpful to lay out the relevant dates schematically:

May 1, 1962 July 1, 1963

| - |

Misappropriation Replication using
misappropriated
trade secret

March 1, 1964 or later November 1, 1965 or later

| - |

Legitimate replication Legitimate replication
would have commenced would have
(public disclosure) been completed

July 1 1963

| - |

November 1, 1965

Length of injunction

133. *Winston Research Corp. v. Minnesota Mining & Mfg., Co.*, 350 F.2d 134, 141 (9th Cir. 1965).

provides insufficient information. It first provides an objective standard: The "approximate period it would require a legitimate Mincom competitor to develop a successful machine after public disclosure of the secret information" ¹³⁴ The court then affirms a two-year injunction. The court reasoned that the fourteen months Winston Research took replicating a product from the trade secret information was a good starting point, and the district court added some portion of the ten additional months to compensate Mincom for the advantage provided by the trade secret over the information that was publicly available.¹³⁵ To calculate the conclusion of legitimate replication accurately, one would have to look at Winston Research's resources, beginning at the time it commenced replication. Assume that Winston Research proves that it could have replicated the product within twenty months after Mincom's March 1, 1964, public disclosure of the trade secret, thus by November 1, 1965. One can then calculate the proper injunctive period: Twenty-eight months, the period from Winston Research's replication of the product using the misappropriated information (July 1, 1963) through the time Winston would have legitimately reached the market (November 1, 1965).

One cannot draw false comfort about the accuracy of *Winston Research's* approach by noting that twenty-eight months is somewhat close to the actual twenty-four month injunction. The result is hypothetical. To determine the injunctive period accurately, the court would have had to apply a subjective test calculating the commencement and conclusion of legitimate replication, after first being satisfied that Winston Research could and would have legitimately replicated the trade secret absent the opportunity to misappropriate it. The court instead touted an objective standard (although the trial court's application may have been subjective) and then sought to award the period necessary for legitimate replication (the period necessary for independent replication), not the period of commercial advantage (the period from replicating the product illegitimately to the date of legitimate replication).¹³⁶

134. *Id.* at 142.

135. The district court added the remaining (and unallotted) portion of the ten months because the departure of the employees slowed Mincom's development. The court did not address whether this was justified, because Winston Research had not raised that question. *Id.* at 143.

136. Barclay has suggested a model with some of these elements, but it remains objective and can be applied only where the misappropriator actually reached the production stage. Barclay, *supra* note 12, at 219-21. Unfortunately, Barclay expressly suggests using the date a legitimate competitor reached the market. While the time legitimate competitors reach the market may be helpful, it is only to shed light on the appropriate question of when the misappropriator would have legitimately reached the market absent misappropriation. Barclay also does not recognize the importance of asking when the misappropriator would have commenced legitimate replication. His model asks simply for the difference of

Many misappropriators, unlike the defendant in *Winston Research*, never reach the market using the trade secret. In these cases, one can still calculate when the misappropriator would have commenced and completed legitimate replication. The injunction will last until the date the defendant actually would have reached the market legitimately.¹³⁷ For example, applying the proposed model confirms that the court in *A.L. Laboratories* issued the correct injunction, although the opinion's analysis is cursory and poorly explained.¹³⁸ Two drug companies had sought FDA approval for an animal drug, zinc bacitracin. The FDA required various scientific data in the approval process, and maintained the confidentiality of that data.¹³⁹ Philips Roxane misappropriated confidential testing information that belonged to A.L. Laboratories and the court enjoined Philips Roxane for about eleven weeks, from May 6, 1985, through August 27, 1985. As the appellate opinion recognizes, somewhat rarely among current cases, the calculation must determine when the misappropriator would have commenced legitimate replication. The court determined that Philips Roxane would have begun independent legitimate research immediately had it not misappropriated the information of A.L. Laboratories on May 28, 1981.¹⁴⁰ The court calculated that Philips Roxane would have taken fifty-one months to complete legitimate replication, or until August 27, 1985. The court concluded that "retroactive" application of a fifty-one month injunction from May 28, 1981 was the appropriate remedy.¹⁴¹

This "retroactive" analysis is misleading. There can be no such thing as a retroactive injunction. A court cannot prohibit someone from taking acts in the past. This article's proposed model is more straightforward. One simply calculates the time when the misappropriator would have commenced and concluded legitimate replication and enjoins the misappropriator until it would have legitimately replicated the trade secret. This erases any time-based benefit

time between the defendant's illegitimate production and the legitimate competitor's production.

137. For a schematic diagram applying this calculation, see note 141 *infra*.

138. 803 F.2d 378 (8th Cir. 1986).

139. *Id.* at 380.

140. *Id.* at 385.

141. *Id.* at 384-85. It may be helpful, once again, to lay out the relevant dates schematically:

| | | |
|--|----------------------|--|
| May 28, 1981 | May 6, 1985 | August 27, 1985 |
| | | → |
| Commencement of legitimate replication | Final judgment | Conclusion of legitimate replication |
| | | → |
| | Length of injunction | |

achieved by the misappropriation by preventing the misappropriator from using the replicated trade secret until it would have legitimately been able to do so.

2. *Nonuse Claims*

Recognizing that the proper question is when the misappropriator would have commenced legitimate replication absent the misappropriation sheds helpful light on the inaccuracy of deducting from the injunction any period a misappropriator forebears from using the trade secret technology. Courts are divided on this issue.¹⁴² The critical step to erase the commercial advantage is generally forced nonuse for a period equal to the commercial advantage. Voluntary nonuse may be, and usually is, undertaken for reasons other than the misappropriator's self-imposed penance. When the misappropriator chooses for other reasons not to use the trade secret, nonuse does not erase the advantage represented by the misappropriation. When, long after the misappropriation, the misappropriator decides to commence replication using the trade secret technology, the misappropriator still avoids the extra costs, resources, and time necessary to create that technology legitimately. Its replication period using the misappropriated information is still shorter and less expensive than legitimate replication would have been.

It is also important to recognize that a "nonuse" claim may mean only that the misappropriator has not yet produced a competing product.¹⁴³ The defendant may yet market a product on the basis of the trade secret technology and thus still attain an advantage from its use. Making the plaintiff whole, however, requires that the defendant receive no benefit from the misappropriation.

For example, in *Northern Petrochemical* the defendant, Surfact, attempted to develop a fabric softener using misappropriated information but was set back, at least in part, because its factory was destroyed.¹⁴⁴ The appellate court affirmed the denial of a preliminary injunction for the misappropriation, which had taken place eight years before the appellate decision. The plaintiff, Northern Petrochemical, had conceded that legitimate replication would take five years or less, and the court reasoned that no injunction was warranted because the defendant had not yet produced a fabric softener eight years after the misappropriation. The court concluded that the reason for the ab-

142. *E.g.*, *Surgidev Corp. v. Eye Technology, Inc.*, 828 F.2d 452, 457 (8th Cir. 1987)(no deduction); *Northern Petrochemical Co. v. Tomlinson*, 484 F.2d 1057, 1061 (7th Cir. 1973)(deduction).

143. *E.g.*, *Affiliated Hospital Prod. v. Baldwin*, 373 N.E.2d 1000 (Ill. 1978); *Northern Petrochemical Co. v. Tomlinson*, 484 F.2d 1057, 1058-61 (7th Cir. 1973)(affirming decision not to grant injunction because no product had been marketed).

144. *Northern Petrochemical Co. v. Tomlinson*, 484 F.2d 1057, 1058 (7th Cir. 1973).

sence of commercial manufacture during those years was irrelevant and that Surfact's "voluntary abstention" from commercial production compensated Northern Petrochemical as well as an injunction would have.¹⁴⁵

This reasoning is highly suspect. In the first place, it shares the faults of the cases automatically commencing the legitimate replication period from the date of the misappropriation rather than asking when the misappropriator would have commenced legitimate replication absent the misappropriation.¹⁴⁶ The defendant, Surfact, was in fact using the trade secret technology during that period and was set back by an explosion at its plant. This is hardly "voluntary abstention."¹⁴⁷

But *Northern Petrochemical's* denial of any remedy is more deeply flawed. Surfact has still obtained a commercial benefit from the misappropriation despite its failure to market a softener by the date of the court's opinion. The explosion at its plant forced a period of downtime whether or not the halted effort was legitimate. Development efforts would be necessary after rebuilding the factory, whether Surfact was a legitimate replicator or a misappropriator. The misappropriator has still escaped the requirement to perform legitimate replication and should still be enjoined from using the trade secret for the period necessary to match the period of commercial advantage the misappropriation provided.

There was no showing in *Northern Petrochemical* that anyone, much less the misappropriator, had replicated Northern's trade secret technology by legitimate means. Thus, that decision would protect (and may have protected) a misappropriator who simply bides its time and then claims to the court that the time for independent replication is past and it should now be free to compete. Depending upon the breadth of the misappropriation, such a misappropriator avoids the cost of trial-and-error research, reduces the risk of failure, and reduces the costs of development. *Northern Petrochemical* is thus reduced to the unacceptable proposition that the misappropriator may market a product developed from the trade secret as soon as the mythical average period for legitimate replication expires. No showing of the misappropriator's own abilities or efforts would be required.

The proper result is quite to the contrary. *Northern Petrochemical* is a rare case in which the court had an opportunity to impose an injunction in time to prevent any commercial advantage.¹⁴⁸ Without the

145. *Id.* at 1061.

146. See notes 97-102 and accompanying text *supra*.

147. *Northern Petrochemical Co. v. Tomlinson*, 484 F.2d 1057, 1058 (7th Cir. 1973).

148. Despite these flaws in the injunctive analysis of *Northern Petrochemical*, its reader is left feeling that the decision to deny relief may still be accurate. There may well have been other, more defensible grounds to affirm. The trial court in

trade secret technology, the slower Surfact would likely never have marketed a fabric softener incorporating the trade secret technology. Indeed, *Northern Petrochemical* notes that one could not reverse engineer the trade secret information from a review of the marketed product.¹⁴⁹ But for the misappropriation, it is likely that Surfact could never bring a product to the market. Under those facts, the court should issue an indefinite injunction requiring legitimate replication.

Assume, on the other hand, that Surfact eventually produced a fabric softener based on the misappropriated information. Surfact might have been slower than the average replicator, but this does not undercut the benefit it gained. Indeed, it suggests that the benefit was even greater than it would have been for the average replicator. Where a misappropriator does not use the trade secret for a period it should be treated as would any other business that chooses to put off investment—it should gain no benefit. This situation should be treated no differently from any other. The court should determine when the misappropriator would have commenced legitimate replication, if at all, absent the misappropriation and should set the injunction to expire when legitimate replication would have completed.¹⁵⁰ When the defendant expresses a current intent to replicate but cannot prove it would have started earlier, the injunction should last the full period required for legitimate replication. The commencement of legitimate replication efforts in *Northern Petrochemical* might have occurred, absent misappropriation, sometime before the plant explosion. Whether or not Surfact should have been enjoined for a period equal to the full legitimate replication period, there is no doubt that it should have been enjoined.

3. *The Effect of a Preliminary Injunction*

One issue raised by the cases is whether the period during which the defendant is preliminarily enjoined should count toward the period under the permanent injunction.¹⁵¹ This analysis appears reason-

Northern Petrochemical denied an injunction on the general ground that the plaintiff had failed to show it was likely to succeed on the merits. It is unclear why the appellate court chose to rest its decision on the questionable proposition that a trade secret injunction necessarily should run from the date of the misappropriation.

149. *Northern Petrochemical Co. v. Tomlinson*, 484 F.2d 1057, 1061 & n.6 (7th Cir. 1973).

150. The date of concluding legitimate replication will necessarily be after the date of the final judgment issuing the injunction. Otherwise, the defendant would have produced a product before final judgment, and the court would have calculated the period of commercial advantage as described above, using *Winston Research* as an example. See notes 131-36 & accompanying text *supra*.

151. *E.g.*, *K-2 Ski Co. v. Head Ski Co.*, 506 F.2d 471, 474 (9th Cir. 1974) (remanding to trial court to decide whether period of preliminary injunction should be counted toward period awarded for permanent injunctive relief).

ably straightforward. To the extent the preliminary injunction enjoins the same conduct as the permanent injunction, it prevents the misappropriator from using the trade secrets and should be counted toward the total period.¹⁵² This is true even though the preliminary injunction doubtlessly also serves additional purposes, such as preserving the status quo.¹⁵³

Of course, if the scope of the preliminary and permanent injunctions differ, the injunctive calculations also will differ. The commencement date of the preliminary injunction will be used for the technology it covers, and that of the permanent injunction will be used for any additional technology.

It should be recognized, however, that for good reason courts may not be able, or willing, to fine-tune the injunction on the basis of the limited information generally available in a preliminary injunction hearing. Factual issues can only be decided by the fact-finder at trial and may include complicated disputes of fact crucial to setting the length of the injunction. This necessarily risks imposing a preliminary injunction longer than that necessary to compensate the trade secret holder. This risk is better than dissolving an injunction in the face of disputed facts that, at trial, may establish that the injunction should have continued.

Courts and counsel will undoubtedly exercise their ingenuity in crafting remedies to compensate the misappropriator for any excess period. Obvious suggestions include preventing the trade secret holder from claiming monetary damages for the excess portion of the period. At one extreme, the innocent misappropriator with established sales might be awarded the value of the sales it would have made during the excess portion of the period. At the other extreme, the bad faith misappropriator without established sales might be denied any relief as too speculative. After all, the bad faith misappropriator risked the costs of litigation against it, of which this is one. Moreover, those preliminarily enjoined in other areas of the law regularly (albeit without compensatory justification) incur uncompensated costs and damages during the period through trial. Any difficulty in establishing a remedy for an overlong preliminary injunction should not exclude the trade secret holder from the remedy of an injunction necessary to maintain the status quo and prevent irreparable harm through trial.

152. See *Lamb-Weston v. McCain Foods*, 941 F.2d 970, 974-75 (9th Cir. 1991)(holding that an eight-month preliminary injunction had served the same purpose as a permanent injunction would have, and dissolving injunction); *Sanitary Farm Dairies, Inc. v. Wolf*, 112 N.W.2d 42 (Minn. 1961)(similar reasoning).

153. Cf. *K-2 Ski Co. v. Head Ski Co.*, 506 F.2d 471, 474 (9th Cir. 1974)(suggesting that the preliminary injunctive period should count toward the permanent period if both serve the same purpose).

C. The Impact of Bad Faith on Compensatory Remedies

The bad faith of the misappropriator is relevant to a compensatory remedy. All other things being equal, the decision of the defendant to misappropriate the trade secret reasonably implies one of two facts. Either the defendant did not believe it could legitimately produce the trade secret technology, or the defendant believed misappropriation would avoid the substantial investments necessary for its own legitimate reproduction of the trade secret technology.¹⁵⁴ It is reasonable to infer that the bad faith misappropriator could not reproduce the trade secret technology by permissible means, and she should be required to provide evidence to prove otherwise. This rebuttable presumption does no more, if it remains unrebutted, than require the misappropriator to do what she was legally required to do in the first place.

This presumption simply incorporates into the compensatory framework the understanding of bad faith already exhibited in the award of punitive injunctions. Several cases granting indefinite injunctions and citing bad faith or high standards of commercial morality as the justification also exhibit facts suggesting that the misappropriator might have found it very difficult or impossible to replicate the trade secret legitimately.¹⁵⁵ These courts have properly recognized that injunctions of definite lengths are often inappropriate but have simply postponed the time when they must determine under what circumstances the injunction should be terminated, if at all.

154. *Cf. Boeing Co. v. Sierracin Corp.*, *slip op.* at 3 (Wash. Sup. Ct., Case No. 84-2-11826-1, July 31, 1985)(providing misappropriator an opportunity to prove it could develop the trade secret technology without using the trade secret), *supersedeas bond denied*, *Boeing Co. v. Sierracin Corp.*, *slip op.* (Wash.)(noting misappropriator's failure to develop trade secret technology independently), *aff'd* 738 P.2d 665 (Wash. 1987); *By-Buk Co. v. Printed Cellophane Tape Co.*, 163 Cal. App. 2d 157, 166 (1958)(tried and failed).

155. *Integrated Cash Mgmt. Servs. v. Digital Transactions*, 17 U.S.P.Q.2d 1054, 1057 (2d Cir. 1990)(new combination of known computer "utility programs" could not be "readily duplicated" without the trade secret information); *Boeing Co. v. Sierracin Corp.*, *slip op.* at 3 (Wash. Sup. Ct., Case No. 84-2-11826-1, July 31, 1985)(providing misappropriator an opportunity to prove it could develop the trade secret technology without using the trade secret), *supersedeas bond denied* *Boeing Co. v. Sierracin Corp.*, *slip op.* (Wash.)(noting misappropriator's failure to develop trade secret technology independently), *aff'd* 738 P.2d 665 (Wash. 1987); *Saunders v. Florence Enameling Co.*, 540 So. 2d 651, 653-55 (Ala. 1988)(process for manufacturing enamel-coated fluxing pipe without blemishes was unique and apparently disclosed only by furnace process and not by pipe itself); *Wolfe v. Tuthill Corp.*, 532 N.E.2d 1, 3 (Ind. 1988); *Curtiss-Wright Corp. v. Edel-Brown Tool & Die Co.*, 407 N.E.2d 319, 326 & n.8 (Mass. 1980); *cf. Analogic Corp. v. Data Translation*, 358 N.E.2d 804, 807-08 (Mass. 1976)(revisiting the issue of injunctive relief upon the enjoined party's claim of changed circumstances, and holding that a lead-time injunction is the minimum relief but bad faith could justify greater relief).

These decisions suggest the impact bad faith should have on the compensatory remedy.

Massachusetts has, indeed, expressly recognized that bad faith and traditional compensatory analysis are appropriate factors in fixing an injunction for trade secret misappropriation.¹⁵⁶ While the Massachusetts approach certainly still contains a strong punitive aspect, it evinces some willingness to consider terminations of indefinite injunctions—which is underscored by the *Eastern Marble* opinion considering a motion to dissolve an injunction.¹⁵⁷ This is a hopeful sign, for it shows an attempt to come to grips with the appropriate standard for terminating indefinite injunctions. Nevertheless, the Massachusetts approach expressly considers only the punitive aspect of bad faith misappropriation and has not found a method to regularize the impact of bad faith in fashioning injunctions. This loose test, coupled with the wide discretion given to Massachusetts courts in applying the test,¹⁵⁸ will produce conflicting and inconsistent results.¹⁵⁹ Incorporating the recognition of bad faith into the compensatory analysis will provide more coherent guidance that ensures an accurate compensatory remedy.

Courts should readily adopt this approach. The bad faith misappropriator has, by his own conduct, placed himself in a position that makes it more difficult for him to prove his ability to accomplish legitimate replication. This presumption simply requires him to bear the risk of failing to prove that ability.

D. The Impact of Non-time Investments

The calculation of the injunctive time period must reflect all of the various investments, in addition to the time necessary for the commercially viable research and development of a trade secret. In order to place the misappropriator in the position it would have been in using legitimate replication, the fact-finder must recognize that in many

156. *E.g.*, *Eastern Marble Prod. Corp. v. Roman Marble, Inc.*, 364 N.E.2d 799, 804 (Mass. 1977)(noting that an indefinite injunction is a possible remedy, that the injunction must be at least for the period of commercial advantage, and that bad faith is an appropriate factor); *Analogic Corp. v. Data Translation*, 358 N.E.2d 804, 808 (Mass. 1976)(bad faith can justify an injunction exceeding the period of commercial advantage); *see also* *Curtiss-Wright Corp. v. Edel-Brown Tool & Die Co.*, 407 N.E.2d 319, 326 & n.8 (Mass. 1980)(affirming indefinite relief where the misappropriator acted in bad faith and could not prove an ability to replicate by legitimate means).

157. *E.g.*, *Eastern Marble Prod. Corp. v. Roman Marble, Inc.*, 364 N.E.2d 799, 804 (Mass. 1977)(remanding after motion to dissolve for trial court to determine whether trade secret still existed).

158. *E.g.*, *id.* at 804.

159. For example, *Greenberg's* termination clause would arguably be acceptable under this approach even though its objective termination standard is obviously wrong. *Greenberg v. Croydon Plastics Co.*, 184 U.S.P.Q. 27, 28 (E.D. Pa. 1974).

cases the more labor, talent, and money thrown into the effort, the less time reverse engineering will take. Once this is recognized, the misappropriator must provide compensation to the trade secret holder for the combined benefit received. This will allow a range of possible injunctive periods and investment damages. At one end, a shorter period and higher monetary damages, and at the other end a longer period and lower monetary damages. The range will be bounded by the capabilities of the misappropriator at the date of the initial investment in legitimate trade secret technology development. As with other choices among relief, the successful trade secret plaintiff should have the ability to select the form of damages he wishes to receive, so that the trade secrets plaintiff will choose the point on the range at which he wishes to be compensated.

There will be situations where the misappropriator simply did not have the resources, at the time of the misappropriation, to develop the trade secret technology legitimately. In these situations, a lead-time injunction that matches the lead time of other competitors unfairly benefits the misappropriator, who is allowed to use the trade secret technology although it could not have begun legitimately replicating the technology until later, if at all. Such a misappropriator should face an indefinite injunction until he amasses the necessary resources, at which point the definite-period injunction should commence.

This remedy for non-time investments seems straightforward. This commentator is not the first to point out the need to consider non-time investments,¹⁶⁰ and courts on occasion do address the issue and award monetary relief for non-time investments.¹⁶¹ Unfortunately, however, the point bears emphasis because most courts still do not discuss non-time investments.¹⁶² Those that do take note of non-time investments do not always provide relief for the benefit accorded to the defendant.¹⁶³

This failure to incorporate non-time investments as an essential

160. See Barclay, *supra*, note 12 at 219-20 n. 70.

161. *E.g.*, *Anaconda Co. v. Metric Tool & Die*, 485 F. Supp. 410, 418 (E.D. Pa. 1980)(\$100,000 awarded as non-time investment that was necessary, along with a year of effort, to develop trade secret technology); *A.L. Laboratories v. Philips Roxane, Inc.*, 803 F.2d 378, 383 (8th Cir. 1986)(recounting trial court's analysis of and award of non-time investments, although reversing the trial court on other grounds).

162. *E.g.*, *Brunswick Corp. v. Outboard Marine Corp.*, 404 N.E.2d 205 (Ill. 1980), *Northwestern Petrochemical Co. v. Tomlinson*, 484 F.2d 1057 (7th Cir. 1973); *Winston Research Corp. v. Minnesota Mining & Mfg.*, 350 F.2d 134 (9th Cir. 1965).

163. *E.g.*, *Sperry-Rand Corp. v. A-T-O*, 447 F.2d 1387, 1392-93 (4th Cir. 1971)(overturning as a double recovery an award of non-time investments that in fact was necessary to reflect the benefit to the defendant); *Sperry-Rand Corp. v. Electronic Concepts*, 325 F. Supp. 1209, 1216, 1219 (E.D. Va. 1970)(including non-time investments only to be reversed on appeal without consideration of the non-time investments); *Schulenburg v. Signatrol, Inc.*, 212 N.E.2d 865, 869 (Ill. 1965)(recognizing

component of trade secrets damages, and one necessarily interdependent with the time calculation, is highlighted by the strange development of the injunctive relief in *Syntex Ophthalmics, Inc. v. Novicky*.¹⁶⁴ The Court of Appeals for the Federal Circuit, applying Illinois law, reviewed an injunction that prohibited the defendant from using the trade secret technology for rigid gas permeable contacts for twenty years.¹⁶⁵ This period was set according to testimony that twenty years in labor hours were spent developing the trade secret. The appellate court recognized that these hours of labor were actually expended in less than two years and reduced the injunctive period dramatically, to eight years from the departure of the former employee and four years from the commencement of the preliminary injunction.¹⁶⁶ While the appellate court reduced the period dramatically, it required no award of compensatory damages to reflect the benefit to the misappropriator of the dramatic number of labor hours worked. Because the court appeared to accept the labor hours as accurate, the lack of any consideration of this point clearly points out the general failure to recognize the inevitable tradeoff between time and non-time investments and the need, in most instances, for both.

One problem in gaining court acceptance of the legitimacy of non-time investments is the standard description of monetary damages for trade secret violations. These are typically described as a choice between valuing the loss to the plaintiff or the unjust enrichment received by the misappropriator. While the plaintiff is free to choose the higher of the two, the reward of both would provide a double recovery.¹⁶⁷ Yet, whether or not the plaintiff loses sales, or the defendant obtains sales, the plaintiff has undoubtedly provided to the defendant an investment in time, labor, and other capital resources, and to make the plaintiff whole the defendant must wait for the calculated period and compensate the plaintiff for the benefit of the labor and other capital resources.

Even if a defendant never produces a marketable replica, and has not been attempting such replication, it may still have gained commercially valuable information through the misappropriation. For example, the review of the technology may reveal a process that requires much more initial investment in new equipment than the misappropriator had expected and could provide. In such a setting, a misappropriator hoping to replicate the technology knows that it is too expensive and will refrain from incurring the costs it would have in-

non-time investments in discussion but not including non-time investments in its damage analysis).

164. 745 F.2d 1423 (Fed. Cir. 1984).

165. *Id.* at 1435-37.

166. *Id.* at 1436-37.

167. *Sperry-Rand Corp. v. A-T-O*, 447 F.2d 1387, 1392-93 (4th Cir. 1971).

curred had it attempted to replicate the technology legitimately. The knowledge of what does not work, or what one cannot do, is itself an economic benefit.¹⁶⁸ Trial and error is part of the development period, and the trade secret information allows the misappropriator to avoid the error. Non-time investments deserve greater attention and consistent remedies.

E. Absence of Greater Legal and Transaction Costs

Virtually every court fashioning an injunction in a trade secrets case under the contemporary model already requires expert evidence to apply the objective test to determine when legitimate competitors would replicate a trade secret. The proposed model does no more than refocus the expert's endeavors on the more appropriate issue of when the misappropriator would have achieved legitimate replication absent the misappropriation.

Courts are currently required to employ fairly abstract hypotheticals to apply the objective test. The proposed model will admittedly still require consideration of fairly abstract hypotheticals, but at least the questions will be the right questions: When would the misappropriator have commenced and concluded legitimate replication absent the misappropriation? Moreover, the structure of the model provides substantially more guidance than the current haphazard fashioning of injunctive relief. This will produce greater predictability than the current approaches, and this predictability will grow over time, reducing transactional costs along the way.

F. Existing Law Support

The compensatory models in the common law and under UTSA support injunctive relief that erases any commercial advantage achieved by the misappropriation.¹⁶⁹ UTSA expressly authorizes maximum relief up to the full life of the trade secret and any period thereafter necessary to erase commercial advantage produced by the misappropriation.¹⁷⁰ UTSA does not, however, require relief for this entire period; UTSA provides that courts "may" enjoin misappropriators for this maximum period.¹⁷¹

The only way to eradicate the commercial advantage completely is to place the parties where they would have been absent the misappropriation.

168. UNIF. TRADE SECRETS ACT § 1 cmt.; *Courtesy Temporary Serv. v. Camacho*, 222 Cal. App. 3d 1278, 1287-89 (1990) (efforts with negative results have commercial value and can be protected as a trade secret); *Hollingsworth Solderless Terminal Co. v. Turley*, 622 F.2d 1324, 1333 (9th Cir. 1980).

169. *E.g.*, *Winston Research Corp. v. Minnesota Mining & Mfg.*, 350 F.2d 134, 142 (9th Cir. 1965); see generally *Jager*, *supra* note 26 § 7.02[3][b] (reviewing cases).

170. UNIF. TRADE SECRETS ACT § 2 (1985).

171. See note 80 *supra*.

priation. Both the common law and UTSA support this ideal, but the cases have not achieved an accurate method for calculating this remedy. The model developed in this article provides the necessary improvements for the remedy to be accurate and complete. This model provides a standard approach to guide courts to consider all of the relevant factors and ask the right questions, so that each case will include a complete analysis and the cases will consistently award injunctive relief that erases, but does not exceed, the misappropriator's commercial advantage. This fully compensatory model will reduce the incentive for courts to award punitive injunctions for fear of providing insufficient compensation, and should harmonize the current haphazard awards of injunctive relief in trade secret cases.